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Paper for the House Committee

Report of the Subcommittee on Waterworks (Amendment) Regulation 2017

Purpose

This paper reports on the deliberations of the Subcommittee on Waterworks (Amendment) Regulation 2017 ("the Subcommittee").

Background

2. The Commission of Inquiry into Excess Lead found in Drinking Water recommended in its report that the Water Authority ("WA") should set out clearly the latest standards for all plumbing materials and components to be used in the construction, installation, maintenance, alteration, repair or removal (collectively referred to as "construction, etc.") of fire services or inside services (collectively referred to as "plumbing system(s)") and update the same regularly and periodically.

3. The construction and installation of plumbing systems are required under section 14(3) of the Waterworks Ordinance (Cap. 102) ("WWO") to comply with the requirements prescribed in WWO and the Waterworks Regulations (Cap. 102A) ("WWR"). Pursuant to regulation 20 of WWR, every plumbing material, subject to regulation 25 of WWR, must be of the British Standard ("BS"). Most technical requirements and BS for plumbing materials are contained in Schedule 2 to WWR. While "BS" is defined to mean "the latest revised edition of a specification issued by the British Standards Institution" in regulation 2 of WWR, some of the BS in Schedule 2 to WWR have become outdated or superseded by other standards. The Water Supplies Department ("WSD") has published a list of latest applicable standards for plumbing materials on its website for reference of the trade.

4. Against the above background, the Waterworks (Amendment) Regulation 2017 (L.N. 81 of 2017) ("the Amendment Regulation") was gazetted on 19 May 2017 and tabled at the Legislative Council meeting of 24 May 2017. The Amendment Regulation comes into operation on 14 July 2017.

Waterworks (Amendment) Regulation 2017

5. The main amendments made to WWR under the Amendment Regulation are –

- (a) technical requirements including materials to be used in relation to pipes or fittings installed in fire services or inside services, including compliance with the applicable international standards such as BS issued by the British Standards Institution or the Australian Standard issued by the Standards Australia;
- (b) requirements to be met for constituting compliance with a prescribed specification; and
- (c) effect of the relevant amendments made to WWR under the Amendment Regulation to pipes or fittings installed before the Amendment Regulation or any other subsequent enactment coming into operation.

The Subcommittee

6. At the meeting of the House Committee on 26 May 2017, Members agreed to form a subcommittee to study the Amendment Regulation. Hon LEUNG Che-cheung and Dr Hon Helena WONG Pik-wan were elected as Chairman and Deputy Chairman of the Subcommittee respectively. The membership list of the Subcommittee is in **Appendix I**.

7. To allow time for the Subcommittee to study the Amendment Regulation, a resolution was passed at the Council meeting of 14 June 2017 to extend the scrutiny period to 12 July 2017. The Subcommittee has held three meetings to meet with the Administration and received views from deputations and members of the public. A list of the organizations which have submitted views to the Subcommittee is in **Appendix II**.

Deliberations of the Subcommittee

Effect on pre-existing plumbing systems

8. Members have studied the effect of the Amendment Regulation on pre-existing pipes/fittings/plumbing systems and enquired whether a property owner will have to renew the pipe or fitting installed in his property before the Amendment Regulation comes into operation merely because the pipe or fitting does not comply with a requirement introduced by the Amendment Regulation.

9. The Administration has advised that the material standards currently stipulated in WWR follow the BS which were made giving due consideration to the need for ensuring drinking water quality at the time of their promulgation. The Amendment Regulation is to update WWR on material standards for pipes and fittings that are currently accepted by WA and used for plumbing works in the industry. The proposed regulation 19A of WWR provides for the saving and transitional arrangements without changing the current regime on the control of quality of water supplied through pre-existing pipes and fittings in order not to cause too much burden on the public. Without such an arrangement, the public may have to alter or renew relevant parts of the inside services or fire services once a material standard has been updated in WWR, and this is not the Administration's policy intent.

10. Considering the importance of the quality and safety of drinking water which could be affected by pre-existing pipes and fittings, Dr Hon Helena WONG has suggested that the Administration should amend the proposed regulation 19A(1) of WWR to the effect that a person is not required to alter or renew a pre-existing pipe or fitting if it does not affect the quality of drinking water.

11. The Administration has advised that amending the proposed regulation 19A(1) of WWR according to Dr WONG's suggestion may impose additional requirements for compliance by members of the public, such as owners of existing buildings where pipes/fittings have been installed before the specified enactment comes into operation. The public may have to alter or renew such pipes/fittings once a material standard has been updated in WWR, hence causing burden on them. In short, according to the Administration, Dr WONG's suggested amendment will have far-reaching implications on various stakeholders and requires extensive prior public consultation before it can be taken on board.

Separately, the Administration has further advised that for any pre-existing pipe or fitting which is in the opinion of WA so defective or in such condition as to cause, or be likely to cause, waste, undue consumption or pollution of the supply, under the current section 16 of WWO, WA may by notice require a person to carry out the repairs or other works to the fire service or inside service if he is satisfied that the inside service or fire service is in such a condition that waste or pollution of the supply has occurred or is likely to be caused; or does not comply with the provisions of WWO.

Burden of compliance and efficiency in processing waterworks applications

12. Hon SHIU Ka-fai has pointed out that the cost of waterworks and construction of buildings will inevitably increase as the plumbing trade has to comply with the various increasingly rigorous requirements and standards on plumbing materials and fittings. Eventually the additional cost will be passed on to the consumers.

13. Members note that in the nine months from July 2016 to March 2017, WSD approved a total of 4 289 completed plumbing works. They note the concerns expressed by deputations about the long time taken by WSD in processing applications on plumbing works. Members have urged the Administration to take measures and allocate resources to speed up the approval process. Members have sought information on the time required for processing waterworks applications and asked whether the implementation of the Amendment Regulation will further lengthen the approval process and place burden on the trade unreasonably.

14. The Administration has explained that the whole approval process of the applications generally involves vetting of plumbing proposals submitted by applicants, checking of the pipes/fittings submissions and inspection of the completed plumbing works. Whilst WSD does not readily have information on the respective processing time needed for handling these applications, the total processing time, i.e. from first application for new meters to the final approval of the completed works, includes not only the time taken by WSD to handle the application but also the time taken by the applicants for submission of revised proposals, supplementary information and rectification of defective works. That said, since the excess lead-in-water incident, WSD has taken the following measures to enhance the control of installation and construction of the inside service:

- (a) imposed a five-year validity period of general acceptance ("GA") for water supply pipes and fittings since August 2015. WSD has also stipulated the requirements for submission of supporting document of the lead free soldering materials;
- (b) stipulated the requirements for carrying out non-destructive tests on solder pipe joints and water sampling test for testing of heavy metals including lead since August 2015; and
- (c) developed a detailed checklist for inspection and approval of completed plumbing works and enhanced the point penalty system for licensed plumbers ("LPs") stressing the importance of using compliant plumbing materials and proper discharging of the duties of LPs since October 2015.

15. According to the Administration, due to the above measures, the average total processing time for the approval of completed plumbing works of new buildings (including the time taken by the applicants for submission of revised proposals etc.) increased from 155 days in 2014 to 222 days in 2015. In order to reduce the total processing time for the approval of completed plumbing works, WSD has introduced the following enhancement measures for processing of applications since 2016:

- (a) increased staff resources by redeploying existing staff as well as recruiting retired civil servants and contract staff to clear the backlog; and
- (b) launched a pilot scheme of which LPs could opt for carrying out interim inspections of laid underground pipes or final inspection of new building projects to the prescribed requirements in order to shorten the time for interim or final inspections of new building projects.

16. The total average processing time in 2016 has subsequently decreased to 150 days, i.e. back to the level in 2014. To speed up the approval process, WSD has further introduced the following enhancement measures for processing of applications since February 2017:

- (a) providing a submission checklist for plumbing proposals for use by applicants;

- (b) streamlining the vetting procedure of plumbing proposals; and
- (c) providing webpage function for preparation of material submission.

17. The Administration has assured the Subcommittee that WSD will continue to work with the plumbing industry and review the internal workflow and introduce enhancement measures with a view to further speeding up the whole approval process.

Cleansing of fresh water storage tanks

18. When scrutinizing the proposed requirements on cisterns for the storage of cold water in Part 3 of Schedule 2, members have expressed concern about how adequately the cleansing of fresh water tanks or storage cisterns in buildings is regulated. They have sought information on relevant guidelines issued by the Administration, and on the existing and proposed measures or mechanism, if any, to ensure compliance with the guidelines.

19. The Administration has advised that, pursuant to regulation 7 of WWR, a registered consumer shall be responsible for keeping an inside service clean while the responsibility for keeping clean any part of an inside service which is a communal service shall be that of a registered agent. In this regard, the custody and maintenance of the communal service, including the cleansing of the water tanks/storage cisterns, are usually undertaken by a property management office who is acting as the registered agent of a building.

20. In order to provide the consumers and agents with advice on how to inspect and maintain their fresh water plumbing systems properly, WSD has published a "Fresh Water Plumbing Maintenance Guide" which describes recommended practices for proper maintenance of inside service, including the steps and frequency for cleansing of water tanks. A guideline on cleansing of fresh water storage tank is also available on the website of WSD for reference of the public.

21. In addition, WSD launched the "Fresh Water Plumbing Quality Maintenance Recognition Scheme" in July 2002 to promote proper maintenance of internal plumbing systems through the participation of the property management office or the registered agent. The programme was enhanced in December 2015 to become the "Quality Water Supply

Scheme for Buildings - Fresh Water (Plus)" ("the Scheme"). Under the Scheme, WSD assesses the applications according to the following criteria:

- (a) The internal plumbing system is inspected at least once every 3 months by qualified persons (such as licensed plumbers, building services engineers or building surveyors) and is found to be in good physical condition. All defects identified in the inspections are promptly rectified by qualified persons;
- (b) The water tanks are cleansed at least once every 3 months; and
- (c) Water samples are taken in accordance with the required procedures and tested for items specified with results complying with the acceptable limits, at least once for new/renewal applications.

22. According to the Administration, under the Scheme, WSD will also conduct random inspections to selected plumbing systems for site audit checking of an application. WSD will award certificates to buildings to recognize their success in proper maintenance of their internal plumbing systems with a validity period of 2 years.

23. Apart from the publication and promotion efforts above, WA would also undertake appropriate actions where a complaint is received. In case the conditions of the inside service are not satisfactory, WA may issue a notice to the registered consumers and/or registered agents for rectification, including cleansing of water tanks.

Powers of the Water Authority

24. Members note that the proposed regulation 20(2) provides that 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 WA, 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.

25. In addition, members note that the proposed regulation 25(2) provides that despite a requirement in Schedule 2 for a pipe or fitting to comply with a prescribed specification, WA may approve the installation of a pipe or fitting that does not comply with the specification. The proposed regulation does not specify the grounds on which WA may give such approval under the proposed regulation 25(2). Dr Hon Helena WONG considers that WA should be suitably constrained in exercising his powers and the above proposed regulation 25(2), as currently drafted, will give WA quite wide discretionary powers.

26. The Administration has advised that it agrees in principle that the matters proposed to be stated in the proposed regulation 20(2)(a) and 20(2)(b) of WWR, namely, 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 the quality of water, are the two factors that WA would consider in exercising the respective powers under the proposed regulations 20(2) and 25(2). To address the member's concern, the Administration will propose amendments to that effect.

Metallic plumbing materials and parts

27. Some members including Dr Hon Helena WONG have pointed out that the surface of copper alloy components, such as taps, are commonly plated with nickel-chromium for preventing corrosion and improving appearance. Dr WONG considers that as the inside of these components may be affected by the nickel-chromium plating near the apertures and the nickel-chromium may be released contaminating the water that passes through the taps, it should be regulated to comply with appropriate standards under Schedule 2.

28. The Administration has advised that WA has set up a GA system on plumbing materials. The Administration has further advised that BS EN 200:2008 for taps stipulates that "all materials coming into contact with water intended for human consumption shall present no risk to human". As such, material suppliers will have to demonstrate the compliance with it via chemical composition testing against relevant metallic material standards for metals and BS 6920:2014 for non-metallic materials. The current practice is that the WA holds regular meetings with members of the Technical Committee on Plumbing (including a representative from the accredited laboratories who is well aware of the requirements conforming to WWR) to, inter alia, formulate the testing criteria of the plumbing materials. The suppliers will follow the testing criteria of a plumbing material and submit to WA test report issued by an

accredited laboratory. WA will check and verify the test report prior to granting for GA to such a plumbing material.

29. To address Dr WONG's concern about electroplating material, the Administration has advised that WA will issue a guideline on the necessary testing to demonstrate compliance of water taps in regard to electroplating material on their wetted surface to the accredited laboratories, as well as relevant stakeholders in the plumbing industry, for reference.

30. In addition, considering cast iron is a comparatively brittle material for making water pipes, and in view of members' concern about its performance in corrosion resistance, the Administration will propose to delete cast iron from the relevant requirements. Members have not raised any objection.

Non-metallic materials and products for use in contact with water

31. Members note that paragraph 23 of Part 1 of Schedule 2 provides that non-metallic materials and products for use in contact with water intended for human consumption must comply with the relevant requirements in BS 6920 series. To enhance the clarity of the provision and to help manufacturers and suppliers of fittings such as taps know better about the requirements for non-metallic materials and products, Dr Hon Helena WONG proposes to add ", including but not limited to lubricants, silicone sealing rings, elastomers sealing rings etc," in the provision. By the same token, Dr WONG also proposes to add in Part 2 of Schedule 2 a new paragraph which is same as the proposed amended paragraph 23 of Part 1 as there is no provision on the standards that the non-metallic materials and products therein have to comply with.

32. Regarding Dr WONG's suggestions, the Administration has clarified that BS 6920 series include the testing of lubricants, silicone sealing rings, elastomers sealing rings, etc. and it is not necessary to add them to the regulation. Besides, BS 6920 series apply to all non-metallic materials and products for use in contact with water intended for human consumption and other non-metallic materials and products in other parts of Schedule 2 of WWR. To address members' concern, the Administration will propose to add a note after paragraph 23 of Part 1 of Schedule 2 of WWR to annotate its scope of application.

Heaters for drinking water and water pumps

33. When studying the Amendment Regulation, members have taken the opportunity to see if adequate provisions have been made in the Amendment Regulation for the purpose of ensuring the quality and safety of drinking water. In response to members' enquiries, the Administration has clarified that the water heater provided under the proposed Part 4 of Schedule 2 refers to heater used for heating water which is not intended for human consumption. For the avoidance of doubt, the Administration will propose to amend the proposed Part 4 of Schedule 2 to that effect. Members have not raised objection to such proposal.

34. Dr Hon Helena WONG notes that WWO and WWR currently do not regulate water heaters which are connected to inside service for water intended for human consumption despite the fact that they are widely used in kitchens of restaurants, and pantries in schools, hospitals and offices. Drinking water is often in contact with these heaters in very high temperature for long hours and is hence susceptible to contamination by harmful substances if, for example, the heaters are made of or contain inappropriate materials. Dr WONG also considers that by the same token, the Administration should take the opportunity to also regulate water pumps in inside services with which drinking water is in contact.

35. The Administration has advised that it has conducted a lot of publicity and public education including publication of leaflet and seminars to provide guidelines on the procurement and use of water heaters which are connected to inside service and heat water intended for human consumption. Besides, the Administration has issued guidelines to the local manufacturers and suppliers of the water heaters. WSD has tested water heaters of nine common brands and the test result was satisfactory. In view of the low risk of water heaters and the complexities involved in regulating water heaters and water pumps, it will deal with these two items in the coming holistic review of WWO and WWR. As the Administration has declined to regulate these two proposed items by amending the Amendment Regulation, the Subcommittee has agreed to propose amendments to regulate these two items under WWR.

Other technical amendments

36. The proposed paragraph 1 of Part 2 of Schedule 2 of the WWR provides that "Draw-off taps and stop valves...must be capable of resisting a pressure of at least 1 600kPa...". Pursuant to BS EN 200:2008, the testing pressure of a draw-off taps is 1 600kPa while the

working pressure of which is 1 000kPa. Considering that the requirements are also set out in relevant prescribed standards in the proposed paragraphs 14 to 19 of Part 2 of Schedule 2 of WWR, the Administration will propose to repeal this paragraph to avoid ambiguity. Members have not raised any objection to such proposal.

Amendments proposed by the Administration and the Subcommittee

37. The Administration will propose three groups of amendments to the Amendment Regulation with details set out in **Appendix III** to –

- (a) amend regulations 20(2) and add a new regulation 25(2) of WWR in respect of WA's authority (see paragraphs 24 to 26 above); and
- (b) amend the provisions in Schedule 2 of WWR including those relating to "cast iron" (see paragraph 30 above), "non-metallic materials and products" (see paragraphs 31 and 32 above), "water heaters" (see paragraph 33 above) and "draw-off taps and stop valves" (see paragraph 36 above).

The Subcommittee will propose two amendments for regulating heaters for drinking water intended for human consumption and water pumps (see paragraphs 34 and 35 above). The proposed motion to be moved by the Chairman of Subcommittee on behalf of the Subcommittee to amend the Amendment Regulation is at **Appendix IV**.¹

Recommendation

38. The Subcommittee supports the Amendment Regulation and the amendments proposed by the Administration and it will propose two amendments to the Amendment Regulation as set out in paragraph 37 above. The Chairman of the Subcommittee has made a verbal report on the deliberations of the Subcommittee at the House Committee meeting on 30 June 2017.

¹ In the course of preparing the proposed amendments, it has been clarified and confirmed by Dr Hon Helena WONG that the heaters and water pumps concerned should be wall-mounted dispensers for drinking water intended for human consumption that are installed in and connected to inside services and booster pumps respectively.

Advice sought

39. Members are invited to note the deliberations of the Subcommittee as set out above.

Council Business Division 1
Legislative Council Secretariat
5 July 2017

Appendix I

Subcommittee on Waterworks (Amendment) Regulation 2017

Membership list

Chairman Hon LEUNG Che-cheung, SBS, MH, JP

Deputy Chairman Dr Hon Helena WONG Pik-wan

Members Hon Alice MAK Mei-kuen, BBS, JP

Hon Andrew WAN Siu-kin

Hon SHIU Ka-fai

Dr Hon YIU Chung-yim

(Total : 6 members)

Clerk Mr Derek LO

Legal Adviser Ms Wendy KAN

Subcommittee on Waterworks (Amendment) Regulation 2017

List of the organizations which have given views to the Subcommittee

1. Frontline Tech Workers Group
2. Hong Kong Licensed Plumbers Union Limited
3. Hong Kong Licensed Plumbing Professionals Association Ltd.
4. Hong Kong Plumbing and Sanitary Ware Trade Association Ltd
5. Plumbing Technology Student Association
6. Progressive Lawyers Group
7. Registered Minor Works Contractor Signatory Association Ltd.
8. The Association of Construction Materials Laboratories Limited
9. The Association of Registered Fire Service Installation Contractors of Hong Kong Limited
10. The Chartered Institute of Plumbing and Heating Engineering – Hong Kong Branch
11. The Hong Kong Institution of Engineers
12. The Hong Kong Institution of Plumbing and Drainage Limited

Interpretation and General Clauses Ordinance

Resolution

(Under section 34(2) of the Interpretation and General Clauses Ordinance
(Cap. 1))

Waterworks (Amendment) Regulation 2017

Resolved that the Waterworks (Amendment) Regulation 2017, published in the Gazette as Legal Notice No. 81 of 2017 and laid on the table of the Legislative Council on 24 May 2017, be amended as set out in the Schedule.

Schedule

Amendments to Waterworks (Amendment) Regulation 2017

1. Section 7 amended (regulation 20 amended (pipes and fittings to be of British Standard))

Section 7(2), new regulation 20(2), after “if”—

Add

“(and only if)”.

2. Section 9 amended (regulation 25 amended (power to relax regulations))

Section 9, after new regulation 25(2)—

Add

“(2A) The Water Authority may approve the installation of a pipe or fitting under subregulation (2) only if the installation 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. Section 10 amended (Schedule 2 amended)

- (1) Section 10(2), new Part 1, paragraphs 1, 3 and 4—

Repeal

“cast iron,”.

- (2) Section 10(2), new Part 1, paragraph 21—

Repeal

“cast iron or”.

- (3) Section 10(2), new Part 1, paragraph 23—

Repeal

“for use in”

Substitute

“that, when used, may come into”.

- (4) Section 10(2), new Part 1, at the end of paragraph 23—

Add

“Note—

The products described in this paragraph include, but are not limited to, taps, valves and cold water cisterns mentioned in Parts 2 and 3 of this Schedule.”.

- (5) Section 10(2), new Part 2—

Repeal paragraph 1.

- (6) Section 10(7), new Part 4, before paragraph 1—

Add

- “1A. This Part applies to—

- (a) a water heater used for heating water not intended for human consumption; and
- (b) a pipe or fitting that, when used, may come into contact with water heated by the water heater.”.

- (7) Section 10(7), new Part 4, paragraph 9—

Repeal

everything after “material.”.

Interpretation and General Clauses Ordinance

Resolution

(Under section 34(2) of the Interpretation and
General Clauses Ordinance (Cap. 1))

Waterworks (Amendment) Regulation 2017

Resolved that the Waterworks (Amendment) Regulation 2017, published in the Gazette as Legal Notice No. 81 of 2017 and laid on the table of the Legislative Council on 24 May 2017, be amended as set out in the Schedule.

Schedule

Amendments to Waterworks (Amendment) Regulation 2017

1. Section 10 amended (Schedule 2 amended)

(1) After section 10(7)—

Add

“(7A) Schedule 2, after Part 4—

Add

“Part 4A

Wall-mounted dispensers

1. A wall-mounted dispenser for drinking water intended for human consumption that is installed in and connected to an inside service must not be made of metallic, non-metallic or soldering materials which, in the opinion of the Water Authority, may adversely affect the quality of the water.”.”.

(2) At the end of section 10—

Add

“(12) Schedule 2, after Part 6—

Add

“Part 7

Booster pumps

1. A booster pump must not be installed or used on a fresh water inside service if the pump is made of metallic or non-metallic materials which, in the opinion of the Water Authority, may adversely affect the efficiency of the inside service in providing a reliable and adequate supply of water and the quality of the water.”.”.