

消防處
消防安全總區

香港九龍尖沙咀東部康莊道一號
消防總部大廈七樓



FIRE SERVICES DEPARTMENT
FIRE SAFETY COMMAND

7th Floor, Fire Services Headquarters Building
No. 1 Hong Chong Road
Tsim Sha Tsui East, Kowloon
Hong Kong

本處檔號 OUR REF. : (5) in FSD FSC GR 13-314/07 V
來函檔號 YOUR REF. :
圖文傳真 FAX NO. : (852) 2312 0376
電話 TEL. NO. : (852) 2170 9670
電子郵件 E-MAIL : fschq@hkfsd.gov.hk

5 July 2023

To: Recipients of FSD Circular Letters

Dear Sir/Madam,

FSD Circular Letter No. 4/2023
Fire Safety Measures required under
the Fire Safety (Buildings) Ordinance, Cap. 572, Laws of Hong Kong

Part I: Incorporation of the Fresh Water Supply System
into the Fire Hydrant/Hose Reel System

Part II: Improvised Hose Reel System (Direct Pumping Design) and
Improvised Fire Hydrant/Hose Reel System (Direct Pumping Design)

This Circular Letter serves to announce the acceptance of the incorporation of the fresh water supply system into the fire hydrant/hose reel (“FH/HR”) system, improvised hose reel (“HR”) system (direct pumping design) and improvised FH/HR system (direct pumping design) under the Fire Safety (Buildings) Ordinance, Cap. 572 (“the Ordinance”). This circular letter should be read in conjunction with FSD Circular Letters No. 3/2007, 2/2016, 5/2016 and 3/2017.

Part I: Incorporation of the Fresh Water Supply System into the FH/HR System

Following the successful completion of the pilot scheme announced in Part II of FSD Circular Letter No. 3/2017, the Fire Services Department (“FSD”) will, with immediate effect, accept the incorporation of the fresh water supply system into the FH/HR system in target buildings over 20 meters in height or of seven storeys or above as an alternative to the conventional FH/HR system. Five examples are given below to illustrate the installation with regard to the incorporation of the fresh water supply system into the FH/HR system:

- Example 1 – Water supply to FH/HR system via fire service pumps direct from the fresh water roof tank with a backflow preventer installed immediately downstream of the fresh water roof tank (without the provision of an additional fire service water tank) [Appendix I refers].

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- Example 2 – Water supply from the fresh water roof tank to an additional fire service water tank [Appendix II refers].
- Example 3 – Water supply to an additional fire service water tank by making additional branch from the original upfeed water pipe of the fresh water supply system provided that the fresh water supply system is of a sump and pump design [Appendix III refers].
- Example 4 – Partitioning of the fresh water tank into two separate tanks for fresh water and fire service water uses respectively [Appendix IV refers].
- Example 5 – Based on Example 4, an additional fire service water tank is connected to the partitioned tank for fire service water [Appendix V refers].

Part II: Improvised HR System (Direct Pumping Design) and Improvised FH/HR System (Direct Pumping Design)

To further assist owners of target buildings in tackling challenges arising from technical or spatial constraints or other reasons, the FSD has been actively exploring more facilitation measures, including working with the Water Supplies Department (“WSD”) to expand the use of improvised HR systems (direct-feed type) to buildings of four to 12 storeys where installation of fire service water tank is unfeasible due to structural or spatial constraints. To this end, the FSD, in collaboration with the WSD, has introduced the improvised HR system (direct pumping design) and improvised FH/HR system (direct pumping design) for which the connection of fixed fire pumps to government mains is allowed such that the installation of fire service water tank is not required, subject to the conditions that no contamination will be caused to the fresh water supply system and measures against unlawful water consumption are in place. The authorised consultants and Registered Fire Service Installation Contractors (“RFSIC”) can now submit proposals for the use of improvised HR system (direct pumping design) and improvised FH/HR system (direct pumping design) accordingly.

The designs and specifications of improvised HR system (direct pumping design) and improvised FH/HR system (direct pumping design) are illustrated in Appendix VI to VIII for reference. Particular attention is drawn to the following:

General Design

- Apart from the specifications as stipulated in the ‘*Code of Practice for Minimum Fire Service Installations and Equipment (1994 version)*’ which shall be complied with (except the requirement of installation of fire service water tank), the installations of a backflow preventer, pressure reducing valves and a flow switch with alarm bell/ sounder in the mentioned system are also required.

Backflow Preventer and Pressure Reducing Valves

- The backflow preventer is a water supply fitting which must be approved by the WSD prior to the construction of the improvised HR system (direct pumping design) and improvised FH/HR system (direct pumping design).

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- The pressure reducing valves (pilot-operated type) shall be of FSD-approved type and must be approved by the WSD prior to the construction of the improvised HR system (direct pumping design) and improvised FH/HR system (direct pumping design).
- The installation, maintenance, repair or inspection of the backflow preventer shall conform to the WSD's requirements while the installation, maintenance, repair or inspection of pressure reducing valves shall conform with the WSD's and the FSD's requirements. Should there be any discrepancies in the installation requirement, the illustrations in Appendix VII and VIII shall prevail.
- Additionally, the testing and inspection of the backflow preventer and pressure reducing valves shall be carried out in accordance with manufacturer's recommended procedure during the acceptance inspection and annual inspection.

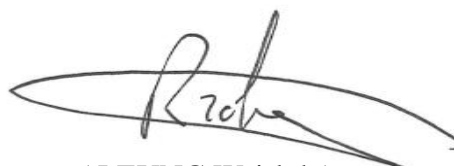
Fire Service Installation or Equipment ("FSI") Drawing Submission

- The following information shall be included in the submission of FSI drawing:
 - the specifications of the backflow preventer and pressure reducing valves which may be provided in the form of product catalogue; and
 - the hydraulic calculation for the improvised HR system (direct pumping design) and improvised FH/HR system (direct pumping design).

The owners of the FSI are required to keep such FSI in efficient working order at all times and have such FSI inspected by an RFSIC at least once in every 12 months. The requirements for inspection and maintenance of improvised HR system (direct pumping design) and improvised FH/HR system (direct pumping design) are similar to the conventional HR system and FH/HR system. Information on the inspection and the work carried out in respect of the improvised HR system (direct pumping design) and improvised FH/HR system (direct pumping design) shall therefore be provided at Part 1, Part 2 and Part 3 of the Certificate of Fire Service Installation and Equipment (FS 251) where appropriate. Examples are shown at Appendix IX.

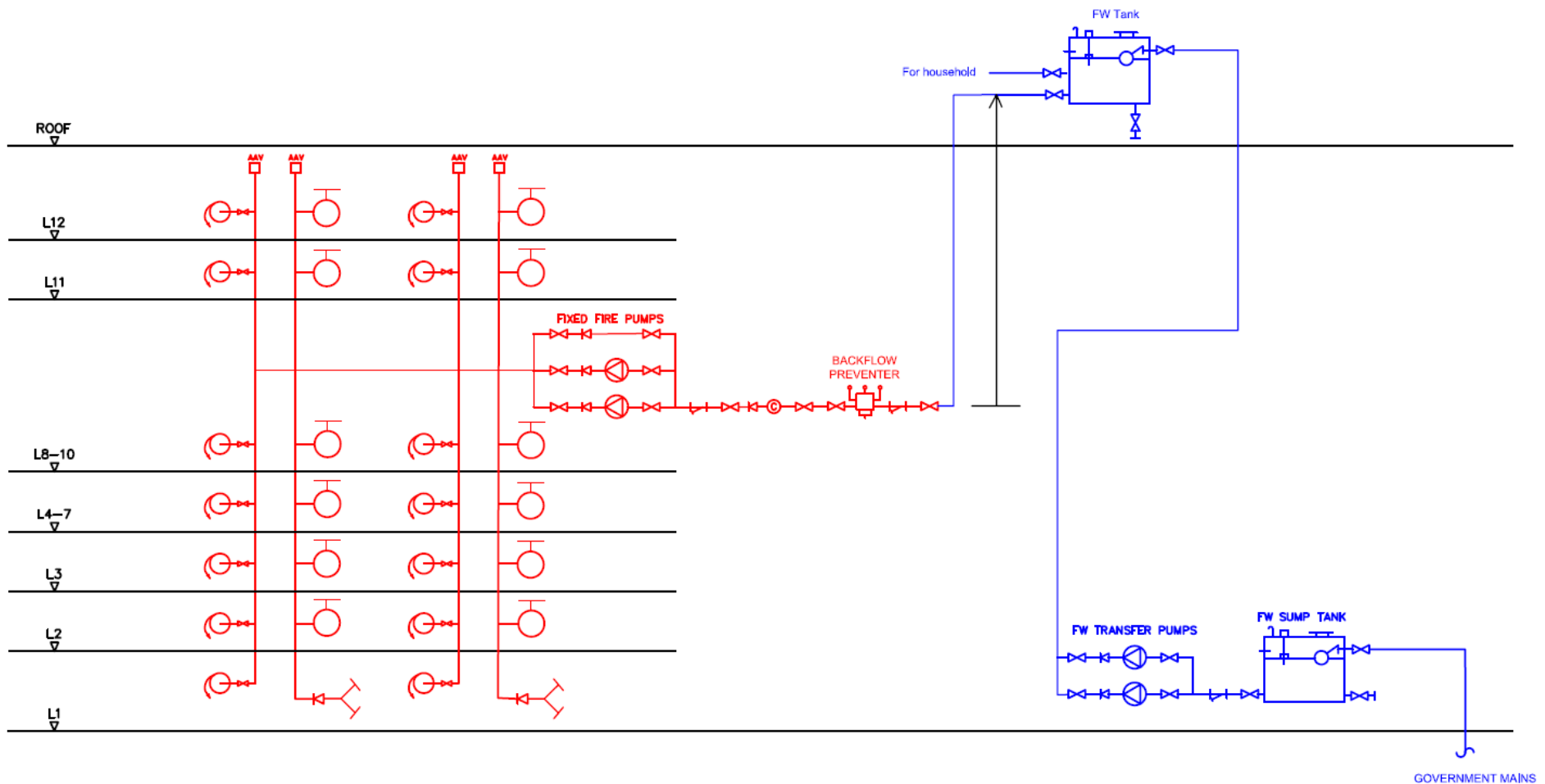
Should you need further amplification, please contact officers of the Building Improvement Division at 2272 9112.

Yours faithfully,



(LEUNG Wai-lok)
for Director of Fire Services

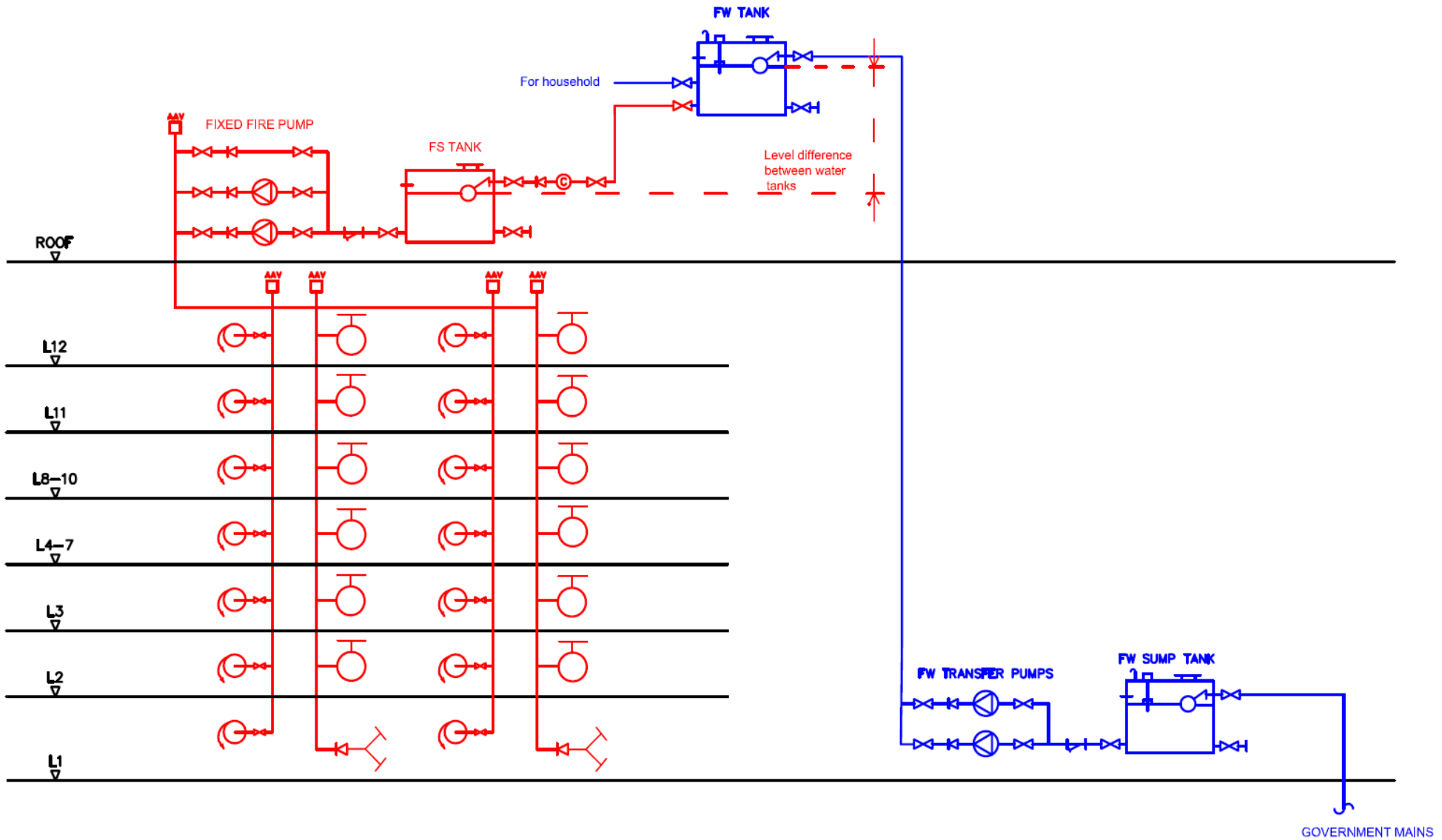
Encl.



Example 1 – FH/HR System for target buildings over 20 m in height or of seven storeys or above

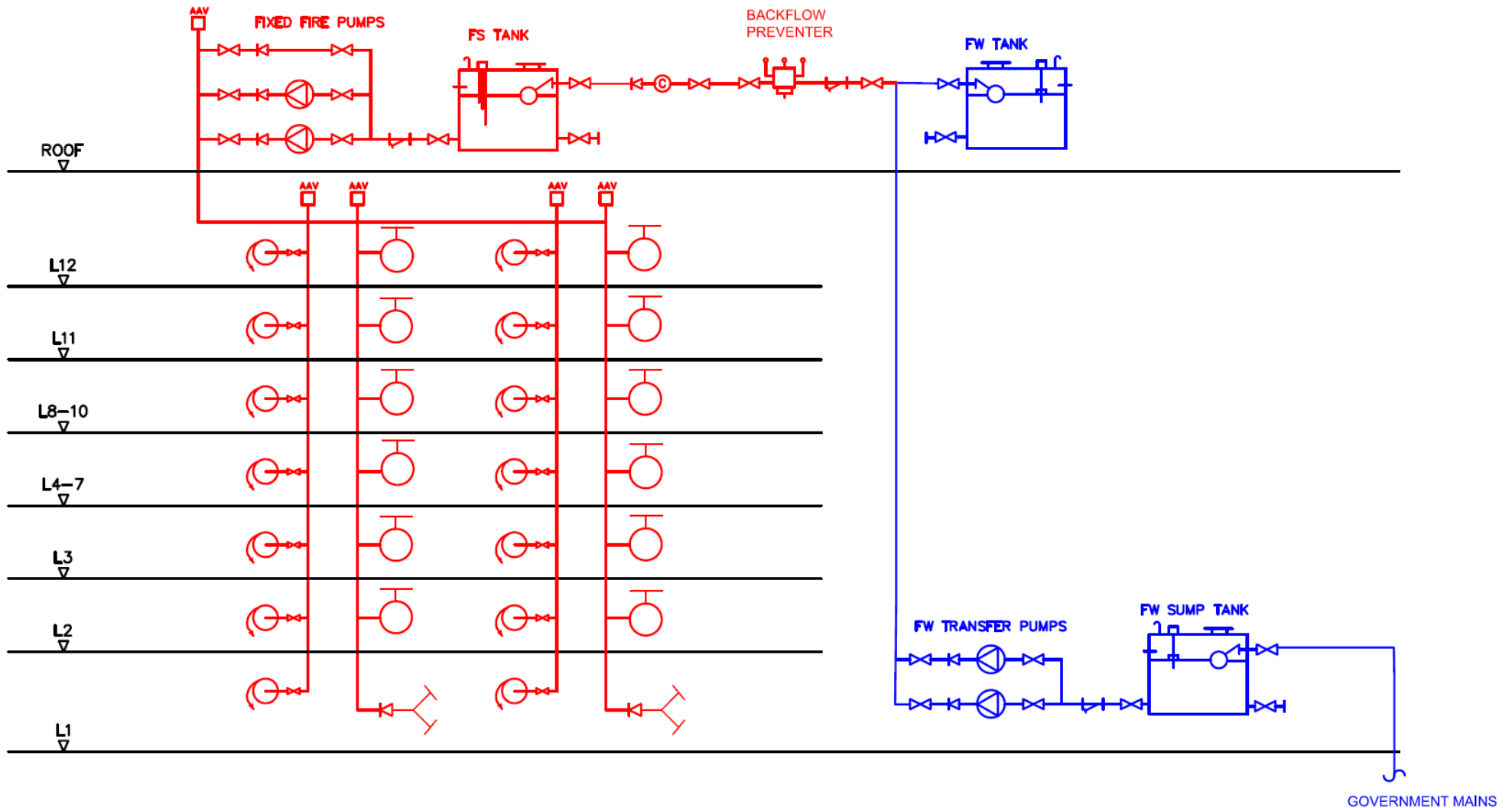
[Water supply to FH/HR System via FS pumps direct from the existing fresh water roof tank with a backflow preventer installed immediately downstream of the fresh water tank (without the provision of an additional water tank subject to the fresh water tank capacity is adequate for both household water and fire service requirement)]

*Please refer to point 1, 2, 3, 4 and 5 in Annex to Appendix I to V.



Example 2 – FH/HR System for target buildings over 20 m in height or of seven storeys or above
 (Water supply from the fresh water roof tank to an additional fire service water tank)

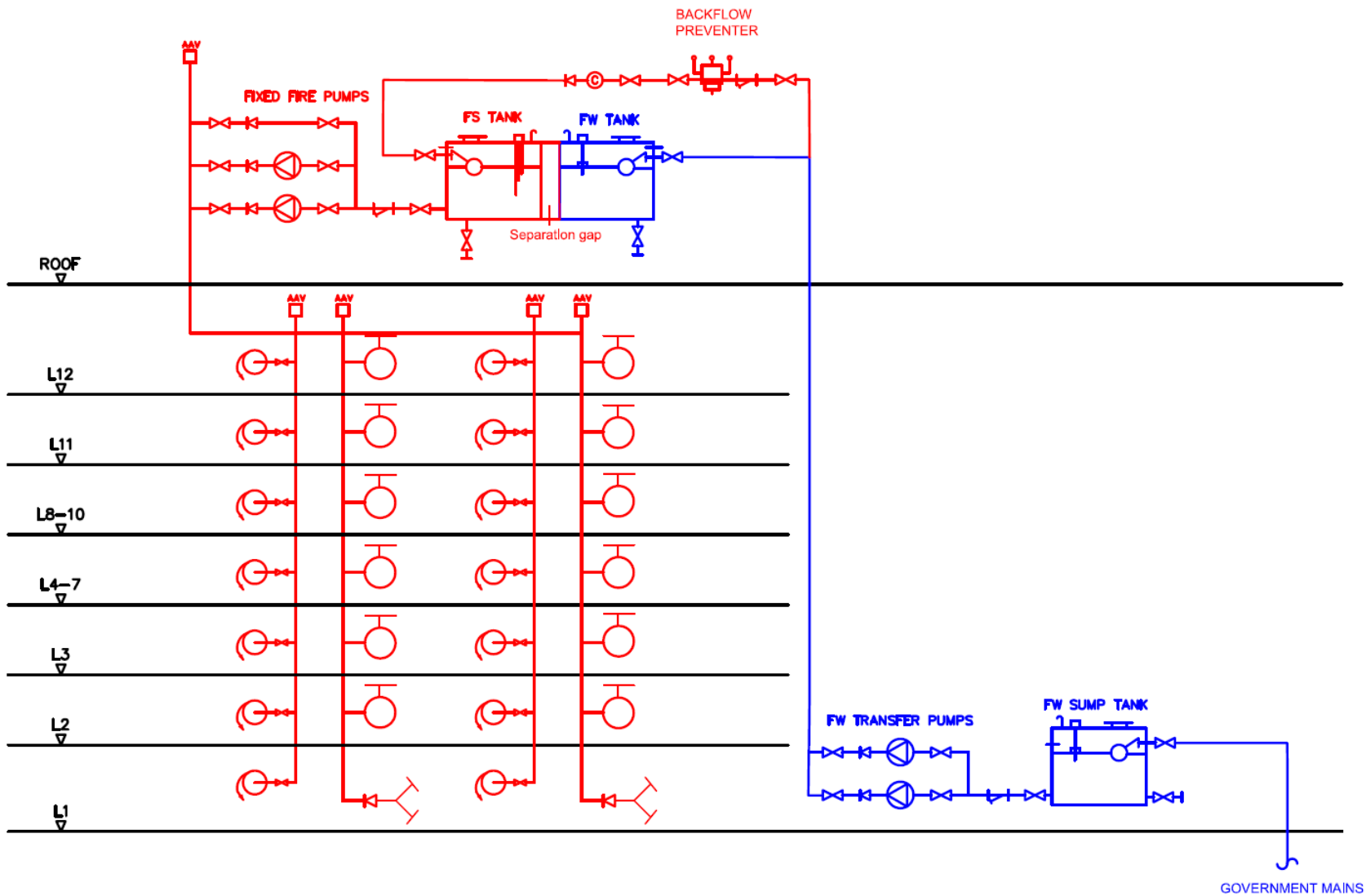
*Please refer to point 1 and 2 in Annex to Appendix I to V.



Example 3 – FH/HR System for target buildings over 20 m in height or of seven storeys or above

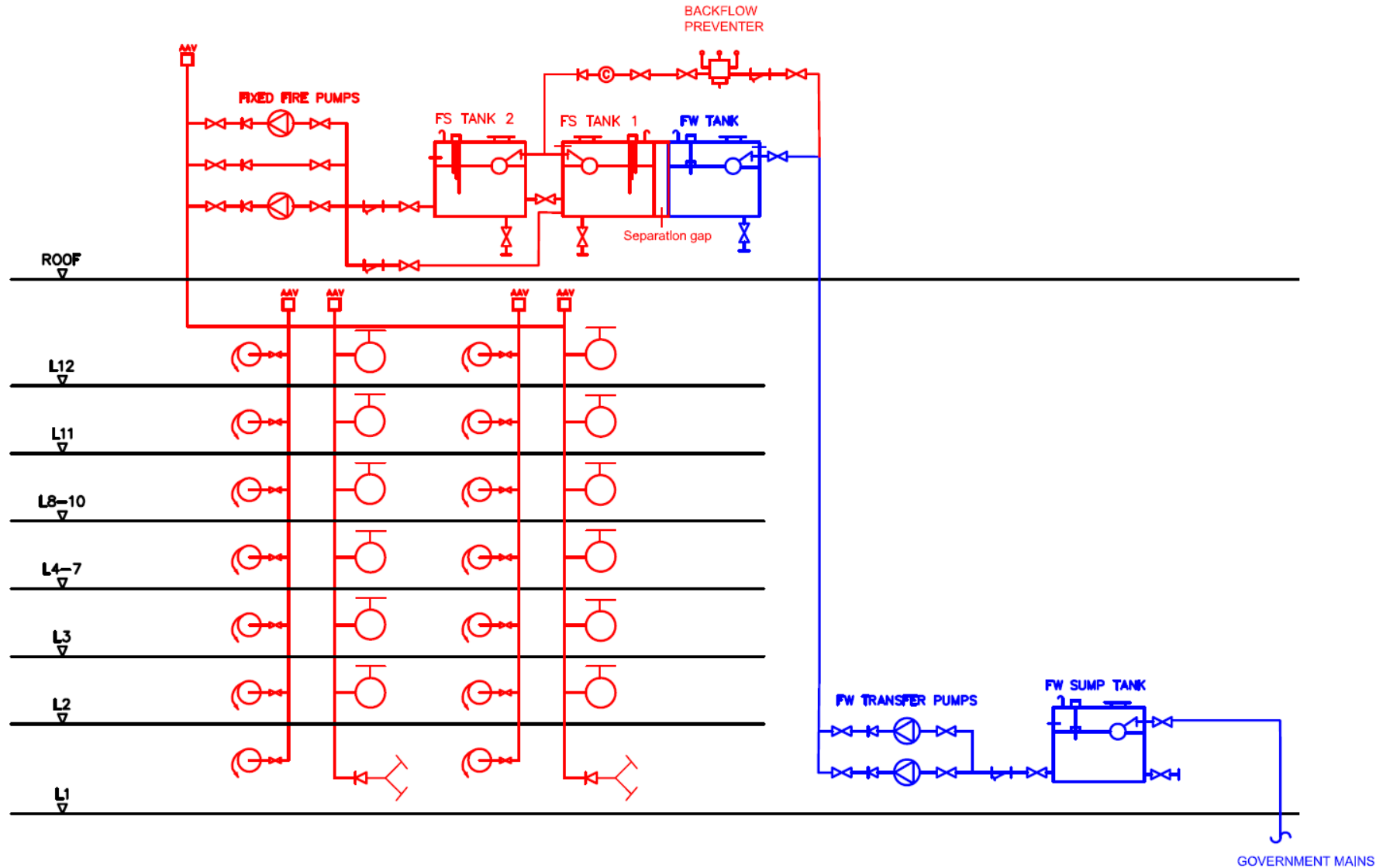
(Water supply to an additional fire service water tank by making additional branch from the original upfeed water pipe of the fresh water system provided that the fresh water supply system is of a sump and pump design)

*Please refer to point 1, 2, 4 and 6 in Annex to Appendix I to V.



Example 4 – FH/HR System for target buildings over 20 m in height or of seven storeys or above (Partitioning of the fresh water tank into two separate tanks for fresh water and fire service water uses subject to the fresh water tank capacity is adequate for both household water and fire service requirement)

*Please refer to point 1, 2, 3, 4 and 6 in Annex to Appendix I to V.



Example 5 – FH/HR System for target buildings over 20 m in height or of seven storeys or above

(Based on Example 4, an additional fire service water tank is connected to the partitioned tank for fire service water to meet the requirement)

*Please refer to point 1, 2, 3, 4 and 6 in Annex to Appendix I to V.

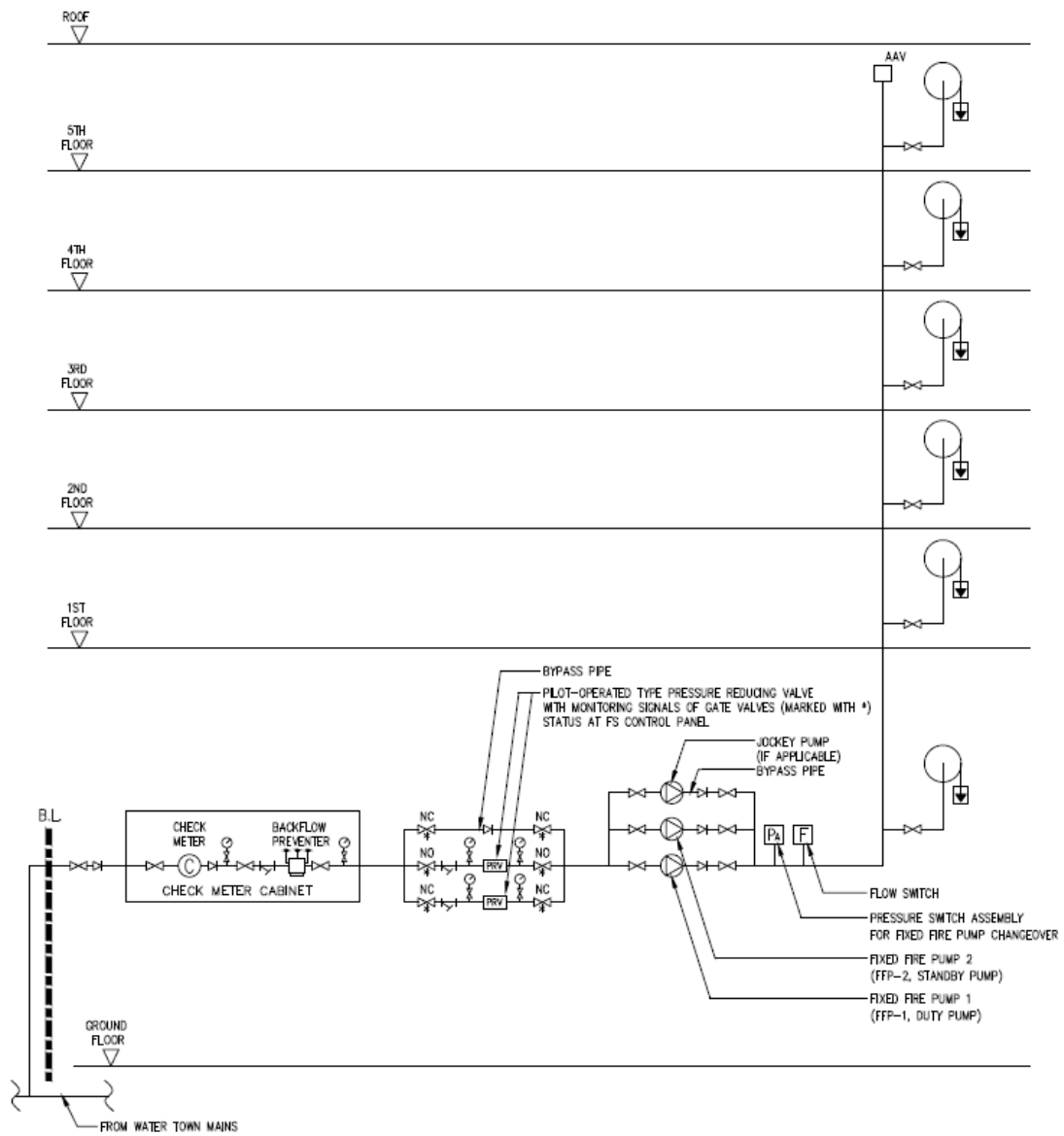
Annex to Appendix I to V

- (1) The proposed alteration for the existing fresh water supply system shall be subject to WSD's approval.
- (2) If the fire safety improvement works involve building works, the Authorised Person / building professional shall submit relevant building plans/ structural plans to the Buildings Department ("BD"). Prior approval and consent from the BD are required.
- (3) If the fire safety improvement works involve the combined storage capacity for household water and fire service water, applicants should provide a water consumption calculation in the FSI submission for the FSD's reference to demonstrate that the water capacity required for FH/HR system has been complied with.
- (4) The testing and inspection of the backflow preventer shall be carried out in accordance with the manufacturer's recommended procedures as specified during the acceptance inspection and annual inspection.
- (5) Sufficient level difference between the water tank and the backflow preventer should be allowed for actuating the backflow preventer and all rising mains and down-coming mains should be kept permanently primed.
- (6) Sufficient pressure head for the fresh water transfer pumps should be allowed in order to overcome the additional pressure loss due to the backflow preventer and associated pipework.

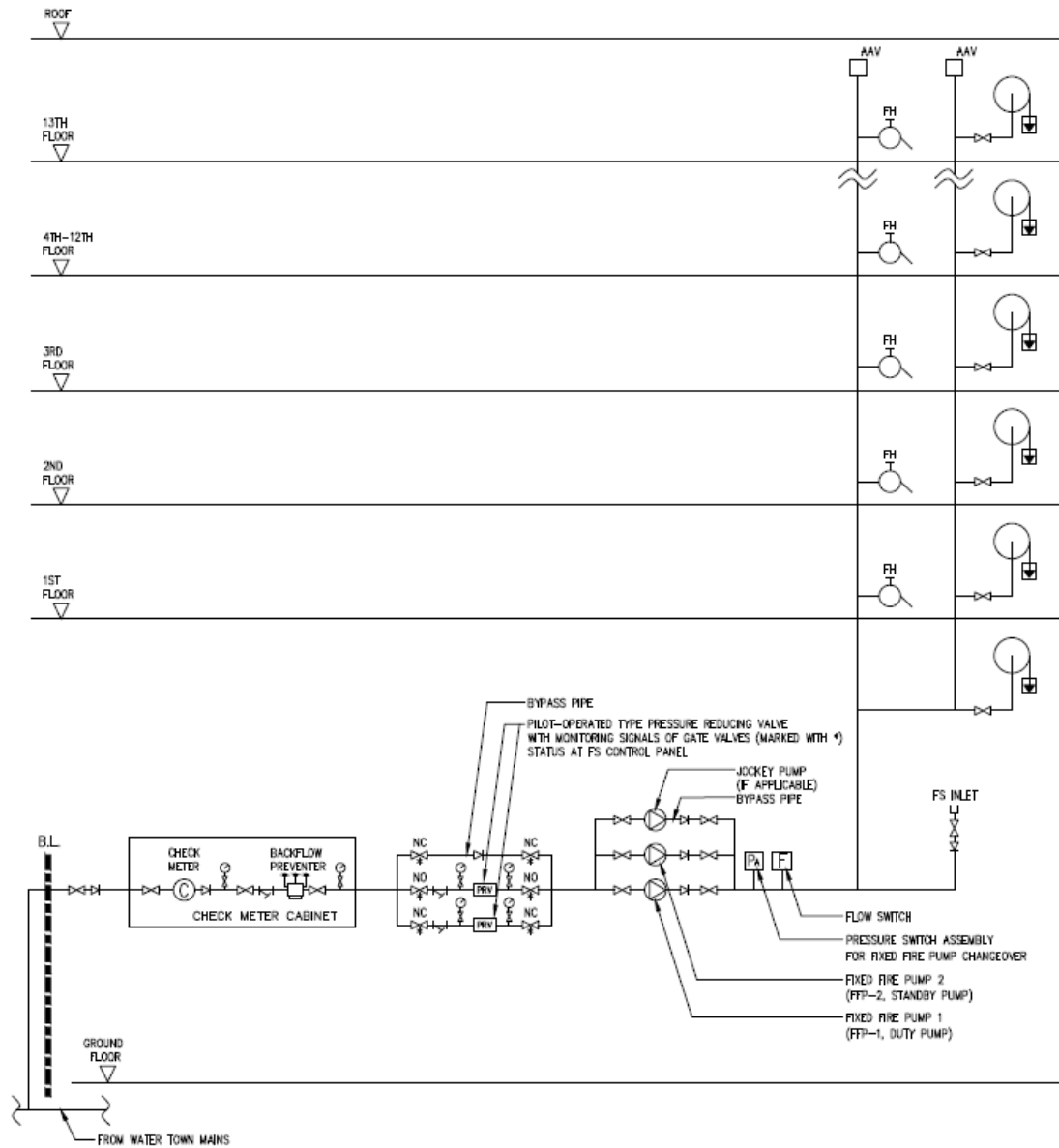
**Design and Specifications of Improvised HR System (Direct Pumping Design) and
Improvised FH/HR System (Direct Pumping Design) for
Target Buildings Regulated under the Ordinance**

- (1) Specifications as stipulated in respective sections in paragraphs 5.11 and 5.14 of the '*Code of Practice for Minimum Fire Service Installations and Equipment (1994 Version)*' should be conformed to with the following modification:
 - Supply tank is not required.
- (2) Primary and secondary source of electricity supply shall be provided for the system.
- (3) The gate valve of the water supply shall be properly secured and locked in an open position at all times to prevent unauthorised tampering.
- (4) A backflow preventer complying with BS EN 12729:2002 – '*Devices to prevent pollution by backflow of potable water - Controllable backflow preventer with reduced pressure zone - Family B - Type A*' and BS EN 1717 or its latest revised edition/ replacement; or other standard/ certification accepted by the WSD shall be fitted as per Schematic Piping Diagram in this Appendix to prevent contamination of the government fresh water supply system. The backflow preventer shall be approved by the WSD prior to construction of the direct pumping system.
- (5) The pressure reducing valves (pilot-operated type) shall be fitted as per Schematic Piping Diagram in Appendix VII and VIII to stabilise the water pressure from the government mains and to maintain steady pump suction pressure for the fixed fire pumps. The pressure reducing valves (pilot-operated type) shall be approved by the WSD and FSD prior to construction of the direct pumping system. The installation, maintenance, repair or inspection of the pressure reducing valves shall comply with the requirements as stipulated in FSD Circular Letter No. 9/2020.
- (6) A flow switch shall be fitted to the system. In case a flow is detected through the flow switch, a visual indication shall be shown on the fire alarm panel and the alarm bell/ sounder should be actuated. The flow signal as indicated on the fire alarm panel shall be independent from the fire alarm signal actuated by manual fire alarm call point(s).

- (7) The improvised HR system (direct pumping design) and improvised FH/HR system (direct pumping design) shall be designed to operate correctly within the range of the minimum residual pressure to the maximum pressure of the government mains as advised by WSD.
- (8) The minimum pipe size of the water supply connected with the government mains shall be 40 mm diameter for the improvised HR system (direct pumping design), and 80 mm diameter for improvised FH/HR system (direct pumping design).



Schematic Piping Diagram for the Improved HR System (Direct Pumping Design)



Schematic Piping Diagram for the Improved FH/HR System (Direct Pumping Design)

EXAMPLE

FIRE SERVICE (INSTALLATIONS AND EQUIPMENT) REGULATIONS

消防(裝置及設備)規例

(Regulation 9(1))

(第九條(1)款)

CERTIFICATE OF FIRE SERVICE INSTALLATION AND EQUIPMENT

消防裝置及設備證書

FSD Ref.:
消防處檔號

Serial Number

19999

Name of Client 顧客姓名

Address 地址

ACB Building, , Hong Kong Island

Type of Building 樓宇類型: Industrial 工業 Commercial 商業 Domestic 住宅 Composite 綜合 Licensed premises 持牌處所 Institutional 社團

Part 1 Annual Maintenance ONLY

第一部 只適用於年檢事項

In accordance with Regulation 8(b) of the Fire Service (Installations and Equipment) Regulations, the owner of any fire service installation or equipment which is installed in any premises shall have such fire service installation or equipment inspected by a registered contractor at least once in every 12 months. 根據消防(裝置及設備)規例第八條(b)款, 擁有裝置在任何處所內的任何消防裝置或設備的人, 須每12個月由一名註冊承辦商檢查該等消防裝置或設備至少一次。

Code 編碼 (1-35)	Type of FSI 裝置類型	Location(s)位置	Comment on Condition 狀況評述	Completion Date 完成日期 (DD/MM/YYYY)	Next Due Date 下次到期日 (DD/MM/YYYY)
16	Improvised Fire Hydrant/Hose Reel System (Direct Pumping Design)	Whole Building	Conform to FSD's requirement	29/06/2023	28/06/2024

Example of entries for annual maintenance. This part is used for annual maintenance ONLY.

Part 2 第二部 Installation / Modification / Repair / Inspection works 裝置/改裝/修理/檢查工作

Code 編碼 (1-35)	Type of FSI 裝置類型	Location(s)位置	Nature of Work Carried out 完成之工作內容	Comment on Condition 狀況評述	Completion Date 完成日期 (DD/MM/YYYY)
16	Improvised Fire Hydrant/Hose Reel System (Direct Pumping Design)	Whole Building	Installation / Modification / Repair / Inspection of Improvised Fire Hydrant/ Hose Reel System (Direct Pumping Design)	Conform to FSD's requirement	29/06/2023

Example of entries for installation/ modification/ repair/ inspection works.

Part 3 第三部 Defects 損壞事項

Code 編碼 (1-35)	Type of FSI 裝置類型	Location(s)位置	Outstanding Defects 未修缺點	Comment on Defects 缺點評述
16	Improvised Fire Hydrant/Hose Reel System (Direct Pumping Design)	Whole Building	Periodic testing of backflow preventer in accordance with manufacturer's recommended procedure is outstanding	Periodic testing of backflow preventer is required

Example of entries for defects.

Remark 備註

I/We hereby certify that the above installations/equipment have been tested and found to be in efficient working order in accordance with the Codes of Practice for Minimum Fire Service Installations and Equipment and Inspection, Testing and Maintenance of Installations and Equipment published from time to time by the Director of Fire Services. Defects are listed in Part 3.

本人藉此證明以上之消防裝置及設備經試驗, 證明性能良好, 符合消防處處長不時公佈的最低限度之消防裝置及設備守則與裝置及設備之檢查測試及保養守則的規格, 損壞事項列於第三部。

如證書涉及年檢事項, 應張貼於大廈或處所當眼處以供消防處人員查核

This certificate should be displayed at prominent location of the building or premises for FSD's inspection if any annual maintenance work is involved.

Authorized Signature:

受權人簽署

Name:

姓名

FSD/RC No.:

消防處註冊號碼

RC1 / 9999 RC2 / 9999

Company Name:

公司名稱

Testing Engineering Limited

Telephone:

聯絡電話

Date:

日期

For FSD use only

Inspected

Key-in

Verified

F.S. 251 (Rev. 01/2012)

95ec-5b8e-5343-c624-3ebf-1767-78f1-e62f



EXAMPLE