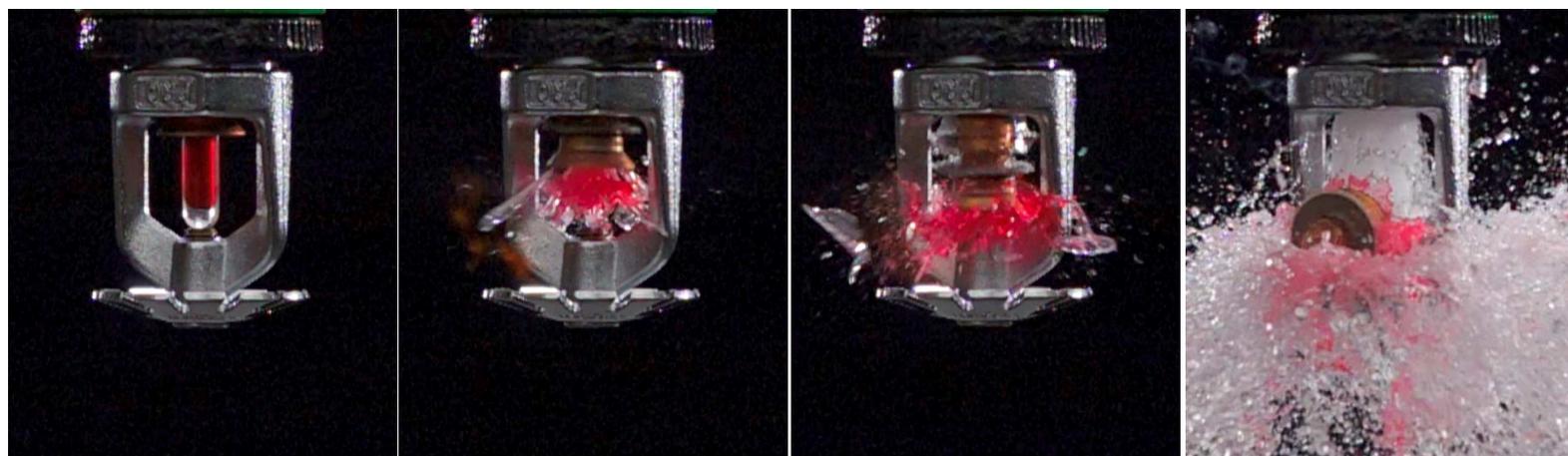




**HONG KONG**  
**FIRE SERVICES DEPARTMENT**



**TECHNICAL GUIDANCE**

**Application of Loss Prevention Council Rules**

**for Automatic Sprinkler Installations 2015**

**incorporating BS EN 12845**

**in Hong Kong**

**September 2020**

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## **PREAMBLE**

The specification of the design, installation, acceptance testing and maintenance of sprinkler system in Hong Kong is stipulated in the Codes of Practice for Minimum Fire Service Installations and Equipment and Inspection, Testing and Maintenance of Installations and Equipment, in which the Loss Prevention Council (“LPC”) Rules for Automatic Sprinkler Installations incorporating BS EN 12845 (with suitable modification pertinent to Hong Kong) shall be followed.

The first publication of the LPC Rules for Automatic Sprinkler Installations incorporating BS EN 12845: 2003 by the Fire Protection Association has been adopted locally since January 2007 vide FSD Circular Letter No. 3/2006. With the release of the LPC Rules for Automatic Sprinkler Installations 2015 incorporating BS EN 12845 (“the Rules”) in November 2015, a Sub-working Group (“SG”) of Fire Safety Standards Advisory Group (“FSSAG”) was set up and tasked to conduct a holistic review on the Rules for its applicability and practicability of local adoption. The SG was consisted of members of the FSSAG representing different stakeholders of the trade including the Hong Kong Institution of Engineers, the Institution of Fire Engineers, the Society of Fire Protection Engineers – Hong Kong Chapter, Architectural Services Department as well as the Association of Registered Fire Service Installation Contractors of Hong Kong. After comprehensive discussions as well as extensive consultations with the trade and respective parties of interests, the SG has meticulously formulated this Technical Guidance by making reference to the figures, tables and other technical details of the Rules. Except for the clauses/parts of the Rules covered in this Technical Guidance, all other clauses/parts of the Rules should be followed directly. Relevant clauses/parts of the Rules specified in Part 2 and 3 of the Technical Guidance are either “not to be applied locally”, “to be revised” or “for reference only” with due consideration on the local situations and relevant Code’s requirements.

This Technical Guidance is intended to facilitate stakeholders of local trade to apply the Rules in Hong Kong. It should be read in conjunction with the Rules, including the Technical Bulletins, Notes, Commentary and Recommendations, and the relevant requirements of Codes quoted therein. The application of the Rules will be reviewed regularly pertinent to local situation.

## **PART 1 – Abbreviations**

The following abbreviations shall be used in this guidance:

BS EN 12845	-	BS EN 12845 : 2015 – Fixed Firefighting Systems – Automatic sprinkler system – Design, installation and maintenance
BD	-	Buildings Department
EECoP	-	Code of Practice for the Electricity (Wiring) Regulations issued by the Electrical and Mechanical Services Department
FH/HR	-	Fire Hydrant / Hose reel
FS Code	-	Code of Practice for Fire Safety in Buildings, 2011 issued by the Buildings Department
FSCC	-	Fire Services Communication Centre
FSCoP	-	Codes of Practice for Minimum Fire Service Installations and Equipment and Inspection, Testing and Maintenance of Installations and Equipment issued by Hong Kong Fire Services Department
HKFSD or FSD	-	Hong Kong Fire Services Department
FSD CL	-	Fire Services Department Circular Letter
LPCB	-	Loss Prevention Certification Board
Lift CoP	-	Code of Practice for the Design and Construction of Lifts and Escalators issued by the Electrical and Mechanical Services Department
LPC Rules or Rules	-	LPC Rules for Automatic Sprinkler Installations 2015 incorporating BS EN 12845

- TB - Technical Bulletins encompassed in the Loss Prevention Council Rules for Automatic Sprinkler Installations Incorporating BS EN 12845 : 2015 and including all updated Technical Bulletins in November 2015
- WSD - Water Supplies Department

## How to Use this Technical Guidance

In this Technical Guidance, information in the entries is arranged in the same order of the Rules. One should first read the Clause of the Rules including its TB and then check the corresponding part of this Guidance in order to apply them properly to suit local requirements. Below is an example of the arrangement of the entries:

<b>Relevant Clause</b>	<b>Citation</b>
<p>Specific part of the Clause and its number of the Rules are quoted here in <b>Bold</b>.</p>	<p>Relevant wording of the Clause is cited inside [“ ”] for ease of identification.</p>
<div style="border: 1px solid #ccc; background-color: #f0f0f0; padding: 10px;"> <p> <b>The third paragraph of Clause 9.3.2.1</b> [<i>“Except for open reservoirs ... water level indicator.”</i>] should be revised and read as <b>“Except for open reservoirs, tanks shall be provided with overflow and level alarms.”</b></p> <p>Note: To suit local practice</p> </div>	
<p>“Note” is supplemented with additional information.</p>	<p>Revised Clause is highlighted in <b>blue color</b> for ease of reading.</p>
<p><b>Symbols</b> Clause with the symbol means: -</p> <p> not to be applied locally</p> <p> to be revised</p> <p> not mandatory and for reference only</p>	

## PART 2 – Clauses in BS EN 12845:2015 which are either ‘not to be applied locally’, ‘to be revised’ or ‘for reference only’

### 3 Terms and Definitions

-  **Clause 3.15** should be revised and read as  
“automatic pump supplying water to a sprinkler system from a gravity tank”

Note: Booster pump of direct connection to town main is not permitted in Hong Kong.

-  **Heading of clause 3.55** should be revised and read as  
“sprinkler, flush”

Note: Ceiling type sprinkler is regarded as a general term.

### 4 Contract Planning and Documentation

-  **Clause 4.1 and 4.2** are not mandatory and for reference only.

Note: System proponent shall follow relevant procedures and requirements as stipulated in the FSD CL.

-  **Clause 4.3 c)** is not to be applied locally.

-  **Clause 4.3 d)** should be revised and read as  
“a statement that the sprinkler system is based on LPC Rules for Automatic Sprinkler Installations 2015 incorporating BS EN 12845 and FSD Technical Guidance.”

Note: This is to suit local practice.

-  **Clause 4.4.2 i)** is not mandatory and for reference only.

Note: System proponent shall follow relevant procedures and requirements as stipulated in the FSD CL.

-  **Clause 4.4.2 k)** should be revised and read as  
“The design and installation of sprinkler system shall follow LPC Rules for Automatic Sprinkler Installations 2015 incorporating BS EN 12845 and FSD Technical Guidance.”

Note: This is to suit local practice.

-  **Clause 4.4.4** is not mandatory and for reference only.

Note: System proponent shall follow relevant procedures and requirements as stipulated in the FSD CL.

## 5 Extent of sprinkler protection

✎ **Clause 5.4** should be revised and read as

“Sprinkler protection of concealed space is not required, if the maximum height of the concealed space at ceiling or floor is not more than 300mm in space and containing no other materials except: -

- Bare metal pipework
- Metallic floor box
- Cables (with voltage less than 250V, single phase) in metallic conduit or trunking
- Cables complying with FSD CL No. 2/2017 Minimum Fire Resisting Cable Requirements for Fire Service Installations”

Note: The BS EN Standard is put in place to protect concealed spaces above ceilings and under floors with sprinklers in case of fire risks inside. With due consideration on the practical situation, exemptions are provided to certain conditions. Also, the relevant TB230 is not to be applied locally.

## 7 Hydraulic design criteria

✎ **The last two sentences of the first paragraph of 7.1** should be revised and read as

“For LH, OH and HHP classes, the minimum requirements for design density and area of operation shall follow TB229.3.2. For HHS, the requirements shall follow TB234.”

Note: Clause 7.2 has been replaced by TB 234 with suitable revision pertinent to local application.

✎ **Note to Clause 7.1** should be revised and read as

“NOTE For pre-calculated systems, the design criteria shall follow relevant requirements in Clause 7.3, 9.3.2.2, 10.7.2 and revised TB 210.”

Note: Clause 10.7 has been replaced by revised TB210. However, Clause 10.7.2 is maintained to suit local practice.

✎ **The meaning of the term ‘a<sub>1</sub>’ of Clause 7.3.2.7** should be revised and read as

“The area of operation for design density, in square metres, shall be referred to TB229.3.2 for HHP or TB234.5 for HHS.”

Note: Table 3 has been replaced by TB229.3.2 and Table 4 has been replaced by TB234.5 (with suitable revision pertinent to local application).

## 8 Water supplies

 **Clause 8.1.1** should be revised and read as

“Water supplies shall be capable of automatically furnishing at least the required pressure/flow conditions of the system. The water supply shall have sufficient capacity for the following minimum durations:

- LH 30 min
- OH 60 min
- HHP 90 min
- HHS 90 min

The duration shall be used for fully calculated system purpose.”

Note: Water supply used for other firefighting system is not acceptable.

 **Clause 8.3** is not to be applied locally.

Note: Connection of other services to the water supply of a sprinkler system is not acceptable locally.

 **Clause 8.4** should be revised and read as

“Water supply equipment, such as pumps, pressure tanks and gravity tanks, shall not be housed in sections of premises in which there are hazardous processes or explosion hazards. The water supplies, pumps, stop valves and control valve sets shall be installed such that they are safely accessible even in a fire situation and the place should be adequately ventilated; control valve set(s) shall be at a fire services access level and readily accessible when responding to a fire.”

Notes:

- i) This is to suit local practice and provide safer condition for maintenance and operation.
- ii) This is to facilitate FSD personnel to gain direct access to control valve set(s) in operation.

 **Clause 8.5.1 c)** should be revised and read as

“All flow measuring devices shall be listed product accepted by FSD. They shall be re-checked before any test results are used to evaluate the available flow.”

Note: This is to suit local practice.

 **Clause 8.5.1 e)** should be revised and read as

“Pressure readings to be used for the pressure/flow test curve shall only be made by an accurate test gauge ( $\pm 5\%$ ).”

Note: This is to suit local practice.

 **The first sentence of Clause 8.5.2** should be revised and read as  
“A flow measuring device shall be permanently installed and shall be capable of checking each water supply from pump.”

Note: This is to suit local practice.

 **The first sentence of Clause 8.5.3** should be revised and read as  
“Where the water supply is not by an automatic pump or pumps, a flow measuring device shall be permanently fixed and shall be capable of checking each water supply.”

Note: This is to suit local practice.

## 9 Type of water supply

 **The second sentence of Clause 9.2** [*“A pressure switch shall be installed ... with a test valve (see Annex I and H.2.5).”*] is not to be applied locally.

Note: Not mandatory as storage tank is required for sprinkler installation.

 **The second paragraph of Clause 9.2** [*“In some cases the water quality ... objects greater than 6 mm diameter to pass.”*] is not to be applied locally.

Note: WSD’s requirements should be followed.

 **The first paragraph of Clause 9.3.2.1** should be revised and read as  
“For each system a minimum water volume is specified. This shall be supplied from one of the following:

- a. a full capacity tank, with an effective capacity at least equal to Table 9 & Table 10 for pre-calculated system or clause 9.3.2.3 for fully calculated system.
- b. a full capacity tank, equivalent with 2/3 capacity as per (a) above, plus direct connection to Service Provider’s Computerized Fire Alarm Transmission System.
- c. a reduced capacity tank (see revised clause 9.3.4), where the required water volume is supplied jointly by the effective capacity of the tank plus the automatic infill.”

Note: This is to suit local practice.

 **The third paragraph of Clause 9.3.2.1** [*“Except for open reservoirs ... water level indicator.”*] should be revised and read as

“Except for open reservoirs, tanks shall be provided with overflow and level alarms.”

Note: This is to suit local practice.

 **The first paragraph of Clause 9.3.3** should be revised and read as  
 “The water source shall be capable of refilling the tank in no more than 24 hours or at rate of 75L/min whichever flow rate is larger. However, the tank shall be refilled in 6 hours if transfer pump is required for refilling.”

Note: This is to comply with the section 5.30 of FSCoP.

 **The second paragraph of Clause 9.3.3** [*“The outlet of any feed pipe ... the suction pipe inlet.”*] is not mandatory and for reference only.

Note: This clause may not be applicable locally, but it shall be taken as a reference for good practice.

 **Clause 9.3.4 b)** should be revised and read as  
 “the effective capacity of the tank shall be no less than that shown in Table 11 below for both end supplies;”

Note: This is to meet local requirement.

 **Clause 9.3.4 c)** should be revised and read as  
 “the tank capacity plus the inflow shall be sufficient to supply the system at full capacity as specified in 9.3.2.1;”

Note: This is to meet local requirement.

 **Table 11 of Clause 9.3.4** should be revised and read as

Hazard Class	Minimum effective capacity m <sup>3</sup>
LH – (Wet or pre-action)	2.5
OH1 – Wet or pre-action	25
OH1– Dry or alternate OH2 – Wet or pre-action	50
OH2 – Dry or alternate OH3 – Wet or pre-action	75
OH3 – Dry or alternate OH4 – Wet or pre-action	100
HHP and HHS	2/3 of the full capacity

Note: This is to meet local requirement.

 **The first paragraph of 9.3.6** [*“In the case of pumps ... the tank having to be emptied.”*] is not mandatory and for reference only.

Note: This is to meet local requirement.

 **Clause 9.5.2 b)** should be revised and read as

“a separate sprinkler protected building complying with local requirements used solely for the housing of fire protection water supplies and equipment;”

Note: This is to meet local requirement.

 **Clause 9.5.2 c)** should be revised and read as

“an unprotected building complying with local requirements with appropriate fire resisting compartment.”

Note: This is to meet local requirement.

 **The second paragraph of Clause 9.5.2** should be revised and read as

“When the pressure tank is housed in a sprinkler protected building, the area shall be enclosed by fire resistant construction complying with local requirements.”

Note: This is to meet local requirement.

 **The following new paragraph for Clause 9.6** should be added

“A superior single water supplies (detailed in revised clause 9.6.2) or duplicate water supplies are required.”

Note: This is to meet local requirement.

 **Clause 9.6.1** is not to be applied locally.

Note: Single water supplies do not comply with section 5.30 of FSCoP.

 **Clause 9.6.2** should be revised and read as

“Superior single water supplies are single water supplies which provide a higher degree of reliability. They shall be agreed with FSD. The acceptable superior water supplies include the following:

- a) a single ended feed from town main supplying suction tank will be accepted provided that the tank has a full tank capacity equivalent stated in revised clause 9.3.2.1. Two or more booster pumps shall be provided.
- b) both end supplies complying with preceding revised clause 9.3.4 for reduced capacity tank.
- c) a gravity tank with or without booster pump, or storage tank with two or more pumps, where the tank fulfils the following conditions:
  - the tank shall be full capacity as per revised clause 9.3.2.1;
  - there shall be no entry for light or foreign matter;
  - potable water shall be used; the tank shall be of concrete construction or LPC approved.

NOTE: For gravity tank with or without booster pump, and storage tank with two or more

pumps, attention on the maximum water pressure limitation specified in clause 8.2 shall be paid.”

Note: This is to suit local practice.

 **The following sub-clauses for Clause 9.6.3** should be added

- “c) town main with either a pressure tank, gravity tank or elevated private reservoir is not accepted;
- d) town main directly connected to automatic pumps is not accepted.”

Note: This is to comply with section 5.30 of FSCoP.

 **Clause 9.6.4** is not to be applied locally.

Note: Water supply from sprinkler tank to other system is not acceptable.

 **The following new Clause 9.8** should be added and read as

### **“9.8 Sprinkler inlet**

Sprinkler inlet shall be provided to the system.

- Number of sprinkler inlet to be provided should be sufficient to feed in the required water flow rates according to revised TB210 T5 with the maximum water flow rate of each sprinkler inlet should be not more than 2000 l/min.
- At least Two sprinkler inlets shall be provided for high rise installation. Additional sprinkler inlets may be requested by FSD.
- All sprinkler inlets of the same 45m Installation Zone shall be interconnected.
- Pipe size shall be the same as control valve size.”

Note: This is to meet local requirement.

## **10 Pumps**

 **Clause 10.7.2 and Figure 7a** should not be replaced by TB210 and kept for local application.

Note: This is to suit local application.

## **11 Installation type and size**

 **Clause 11.1.2.1** should be revised and read as

“Parts of the installation subject to freezing may be protected by the use of dry type sprinklers projecting into the low-temperature area or electrical trace heating or pre-action installations (see 11.4) or subsidiary dry pipe extension (see 11.5).”

Note: Dry type sprinklers are commonly used in local practice.

**NA** Clause 11.1.2.2 is not to be applied locally.

Note: This clause may not be applicable to local climatic condition.

**The last sentence of first paragraph of Clause 11.1.2.3** [*“The piping shall be provided with ... national classification system insulation.”*] should be revised and read as  
*“The piping shall be provided with a Euroclass A1 or A2 (classified according to BS EN13501-1) or equivalent.”*

Note: BS EN no. is added for ease of reference.

**The sixth sentence of second paragraph of Clause 11.1.2.3** [*“All trace heated pipework shall be lagged with ... with a water resistant covering.”*] should be revised and read as  
*“All trace heated pipework shall be lagged with Euroclass A1 or A2 (classified according to BS EN13501-1) or equivalent insulating material of not less than 25mm thick with a water resistant covering.”*

Note: BS EN no. is added for ease of reference and suit local practice.

**The first paragraph of Clause 11.1.3** should be revised and read as  
*“The maximum area (calculated on that portion of area with sprinkler protection) controlled by a single wet alarm valve, including any sprinklers in a subsidiary extension, shall not exceed that shown in Table 17.”*

Note: This is to in line with the requirements of other installations for calculation of protected area.

**NA** Clause 11.3 is not to be applied locally.

Note: No alternative installation is allowed.

**Clause 11.4.1.1** should be revised and read as  
*“Pre-action installations can be independent installations or subsidiary extensions from a wet pipe sprinkler installation with the pre-action control valve and associate water motor alarm gong located on the same floor protected by that pre-action sprinkler. They shall be one of the following types:”*

Note: This is to clarify the acceptable designs of pre-action installation and locations of pre-action control valve for subsidiary extensions.

**The third paragraph of Clause 11.4.1.2** [*“In the event ... dry pip system.”*] should be revised and read as  
*“In the event of a fault in the fire detection system, the installation shall operate as an ordinary dry pipe system or wet pipe system.”*

Note: This is to suit local practice.

📖 **Clause 11.4.1.3** should be revised and read as

“This is an otherwise normal dry pipe installation in which the control valve set is activated by an automatic fire detection system and/or by the operation of the sprinklers.

For the dry pipe installation in which the control valve set is activated by both the operation of automatic fire detection system and sprinkler may only be allowed for cold rooms.”

Note: This is to suit local practice.

📖 **Clause 11.4.2** should be revised and read as

“The detection system shall be installed in all rooms and compartments protected by the pre-action sprinkler system and shall comply with BS EN 5839 part 1 and relevant FSD CLs as far as practicable. Normally, the connection to FSCC of this detection system is not required.”

Note: This is to suit local practice.

📖 **The following new paragraph for Clause 11.6** should be added at the end

“Water spray system should be installed in accordance with the standards accepted by the FSD.”

Note: This is to meet the requirements in FSCoP.

## 12 Spacing and location of sprinklers

📖 **The first bullet point of Clause 12.3** should be revised and read as

“- where arrangements are made to prevent adjacent sprinklers from wetting each other. This may be achieved by a baffle made of metal or fire resistance sheet not less than 200mm wide and 150mm high located midway between the sprinklers (when the baffle is fitted on the range pipe, its top edge shall extend above the sprinkler deflector by 50mm to 75mm), or by using intervening constructional features;”

Note: This is to spell out specifications of the baffle material and its location.

📖 **The fourth to sixth bullet points of Clause 12.4.1** should be revised and read as

“- 1.5 m from the external open face of open-faced buildings (Buildings of reinforced concrete construction with windows or glazing on external walls or curtain wall as external wall is not classified as open face buildings);  
- 1.5 m from external walls where the external walls are of combustible materials;  
- 1.5 m from external walls where the external walls are of metal, with or without combustible linings or insulating materials;”

Note: To clarify that a distance of 1.5m is counted from external open face or wall and specify the definition of open face building.

✎ **The first paragraph of Clause 12.4.2** should be revised and read as

“Sprinklers shall be installed not lower than 0.3m below the underside of combustible ceilings or 0.45m below non-combustible ceilings, e.g. Euro Class A1 or A2 or equivalent requirement as stated in FS Code.”

Note: This is to meet requirement in FS Code.

✎ **Clause 12.4.4** should be revised and read as

“The distance from the edge of a canopy to the nearest sprinklers shall not exceed 1.5 m\*.

\* Provision of sprinkler system under the canopy shall comply with revised TB 206.4.3.”

Note: This is to clarify the sprinkler installation under canopy.

✎ **Figure 10 of Clause 12.4.6** should be revised as follows

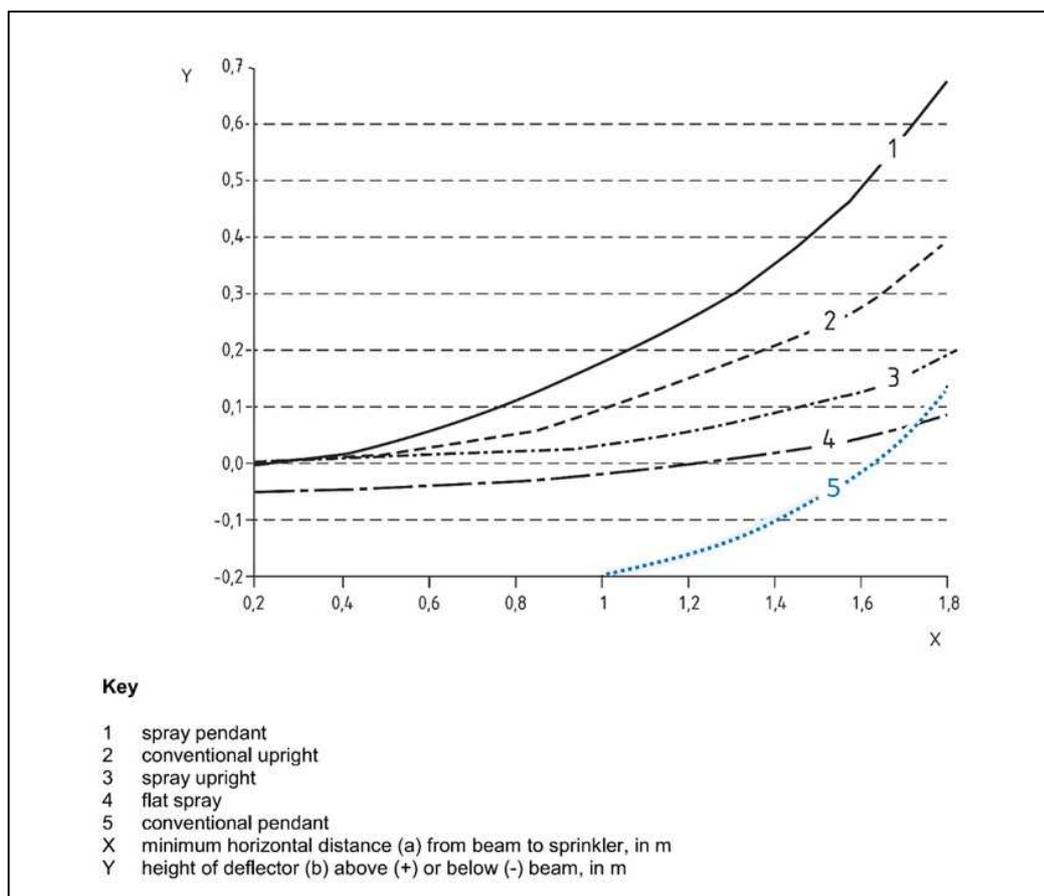


Figure 10 (Revised) – Distance of sprinkler deflector from beams

✎ **The first paragraph of Clause 12.4.7** should be revised and read as

“Where narrow bays are formed between beams spaced at not more than 1.5 m between centres, where the beams are above 450mm (e.g. case of non-combustible construction A1 and A2 or equivalent) or 300mm (e.g. case of combustible construction above A2 or equivalent) in depth, the following spacing shall be used:”

Note: This is to meet local requirement.

- ✎ **The last paragraph of Clause 12.4.7** should be revised and read as  
“Where the beam depth is above 0.7 m, the sprinkler shall be installed in accordance with Clause 12.4.6.”

Note: This is to provide an alternative solution.

- ✎ **The following new sub-clauses for Clause 12.4.10** should be added

- “e) Sprinkler heads should be installed at least 300mm from the bottom edge of air duct/obstructions etc. in order to accumulate suitable amount of heat to operate the sprinklers.
- f) Sprinkler protection is not required for bay window where the depth of bay window does not exceed 800mm.”

Note: This is to suit local practice.

- ✎ **The second paragraph of Clause 12.4.12** should be revised and read as

“At least one sprinkler shall be installed at the top of all shafts except where the shaft is incombustible and inaccessible and contains materials in accordance with Euro class A1 or equivalent except electrical cabling.”

Note: This is to meet local requirement.

- ✎ **The following new paragraph for Clause 12.4.12** should be added at the end

“Enclosed chutes through floors inside or in communication with sprinklered buildings shall be fitted with sprinklers. Lift complying with Lift CoP are not required to be fitted with sprinklers.”

Note: This is to meet local requirement.

- ✎ **The last paragraph of Clause 12.4.14** should be revised and read as

“Where obstruction such as ductworks above the ceiling with width of 800mm or above for rectangular shape or 1000mm or above for circular shape, additional sprinkler protection is required below the obstruction.”

Note: To suit local practice, additional sprinkler protection for obstructions inside ceiling void is required.

- ✎ **The following new paragraph for Clause 12.4.14** should be added at the end

“If all the above requirements cannot be met, an additional layer of sprinklers with water shield shall be provided underneath the suspended open cell ceiling.”

Note: This is to suit local practice.

## 13 Pipe sizing and layout

 **Clause 13.3.4.2** should be revised and read as

“The pipe diameters between the design points of the installation and the control valve set shall be hydraulically calculated using [Table A](#) to ensure that the total pressure loss due to friction with a flow of 1000 l/min does not exceed 0.5 bar, except as modified in 13.3.4.3 and 13.3.4.4.”

**Table A – Pressure loss per unit length of pipe for design flow rates in ordinary hazard installations**

Pipe nominal bore (BS 1387 & BS EN 10255: Medium grade)	Pressure loss per unit length
mm	mbar/m
65	35
80	16
100	4.4
150	0.65
200	0.16

Note 1: The equivalent length of an elbow, bend, or tee where the water is turned through an angle, or through a valve where the friction loss will be greater than a straight unit length of pipe, shall be determined in accordance with BS EN Clause 13.2.4 – ‘Pressure loss through fittings and valves’.

Note 2: Where heavy grade steel pipework is used, calculate the pressure loss per unit length in accordance with TB227.2.2.

Note: This is to suit local practice.

 **The second paragraph of Clause 13.3.4.3** is not mandatory and for reference only.

Note: It is not a local mandatory requirement.

## 14 Sprinkler design characteristics and uses

 **Clause 14.1** should be revised and read as

“NOTE This standard covers only the use of the types of sprinkler specified in EN 12259-1. Sprinkler heads shall comply with EN12259-1 or other standards accepted by FSD.

Only new (i.e. unused) and accepted sprinklers shall be used in new installation. The existing sprinkler can be re-used in sprinkler alternation works subject to the condition of sprinkler in compliance with FSD requirement.”

Notes:

- i) This is to add alternate standards for sprinkler head; and
- ii) to allow re-use of existing sprinkler in alterations and additions works.

- 📖 **Clause 14.2.2 & 14.2.4** should not be replaced by TB207 and kept for local application.

Note: This is to suit local application.

- 📖 **The first paragraph of Clause 14.2.2** should be revised and read as

“Flush, recessed and concealed sprinklers shall not be installed in OH4, HHP or HHS areas. Sprinklers without fixed deflectors, e.g. with retracted deflectors which drop to the operating position on actuation, shall not be fitted in the following situations:”

Note: To meet local requirement, ceiling sprinklers may be used in OH4, HHP, HHS areas.

- 📖 **The description of ‘K’ in Clause 14.3** should be revised and read as

“K is K factor given in Table TB207. T1 and T2;”

Note: This is to update the reference for the replacement for the table and tally the terms to be used.

- 📖 **Clause 14.6** should be revised and read as

“When sprinklers, other than concealed, recessed, or flush sprinklers, are installed in a position at risk of accidental mechanical damage, they shall be fitted with a suitable metal guard.”

Note: This is to include concealed and recessed sprinklers.

## 15 Valves

- 📖 **The following new paragraph for Clause 15** should be added

“Stop, test, drain and flushing valves shall comply with the appropriate standards and size range of Table 38 of BS 5306: Part 2:1990 or other standards accepted by FSD.”

Note: The relevant design standards of various types of valves are not mentioned in the LPC Rules. There is a need to add existing standards with alternate standards.

- 📖 **Clause 15.1** should be revised and read as

“Each installation shall have a control valve set in accordance with EN 12259-2 or EN 12259-3 or other standards accepted by FSD.”

Note: This is to add alternate standards for control valve set.

 **The first paragraph of Clause 15.2** should be revised and read as

“All stop valves which may cut off the water supply to the sprinklers shall:

- close in the clockwise direction;
- be fitted with an electric monitoring switch to indicate that the valve is in the correct operational mode;
- be secured in the right position by a strap and padlock or secured in an equivalent manner.”

Note: This is to suit local practice by adopting existing requirement.

 **Item e) of Clause 15.4** [*“Any pipe ... through another drain valve.”*] is not mandatory and for reference only.

Note: This is to suit local practice.

 **The second sentence of paragraph 2 of Clause 15.4** [*“The outlet shall ... with a suitable plug.”*] should be revised and read as

“The outlet shall be accessible and shall be fitted with a suitable plug.”

Note: This is to adopt a flexible approach for installation of the outlet.

 **The first paragraph of Clause 15.5.2** should be revised and read as

“A test facility shall be provided, incorporating a test valve with any associated fittings and pipework, delivering a flow equivalent to the discharge from a single sprinkler, connected at the hydraulically most remote location on a distribution pipe. At least one such test valve shall be provided for each zone.”

Note: This is to clarify the requirements.

 **The first paragraph of Clause 15.7.1** should be revised and read as

“Pressure gauge fitted to sprinkler installations shall comply with BS 1780 or BS EN 837-1 or other standards accepted by FSD and its scale divisions shall not exceed:”

Note: This is to add other standards accepted by FSD.

## 16 Alarms and alarm devices

 **The first paragraph of Clause 16.1.1** should be revised and read as

“Each control valve set shall be provided with a water motor alarm in accordance with EN 12259-4 or other standards accepted by FSD and a local visual indicator should be provided for each wet alarm valve, both located as close as possible to the alarm valve. A single water alarm motor and gong might be installed common to a group of wet alarm valves provided that these are situated in the same valve room and all local visual indicators shall

be fitted at the alarm gongs to indicate which alarm valve(s) is/are operating. However, for buildings with a single control valve set, a local visual indicator will not be required.”

Note: This is to suit local practice.

 **The first sentence of Clause 16.1.2** should be revised and read as

“The water motor shall be installed in such a way that the gong is on the outside of an exterior wall of the building and with its centre line not higher than 6 m above the point of connection to the alarm valve.”

Note: This is to clarify the definition of exterior wall.

 **The first sentence of Clause 16.2.1** should be revised and read as

“Electrical devices to detect the operation of sprinkler systems shall be either water flow switches conforming to EN 12259-5 or listed by LPCB or complied with other appropriate standards accepted by FSD or pressure switches.”

Note: This is to add alternate standards for water flow switches.

 **The third paragraph of Clause 16.2.2** [*“The test pipe outlet ... water can be seen during tests.”*] should be revised and read as

“The test pipe outlet shall be positioned relative to the drainage system in such a way that the flow of water can be seen during tests.

A common drain pipe for all drain and test connection of water flow alarm switches may be used, which shall be positioned relative to the drainage system in such a way that the flow of water can be seen at the final discharged location of the common drain pipe instead of locally at each water flow alarm switch.”

Note: This is to suit local practice.

 **The first sentence of Clause 16.3** should be revised and read as

“The equipment for automatic transmission of alarm signals from a sprinkler installation to the service provider’s Computerized Fire Alarm Transmission System or the FSD approved manned centre shall be capable of being checked for:”

Note: This is to meet local requirement.

 **The last sentence of Clause 16.3** should be revised and read as

“If a direct connection to the service provider’s Computerized Fire Alarm Transmission System or the FSD approved manned centre, the direct connection shall be tested according to FSCoP.”

Note: This is to meet local requirement.

 **Note to Clause 17.1.1** should be revised and read as

“NOTE The types of pipe which include grey cast iron, ductile iron, steel or copper in accordance with the specifications as stipulated in the TB227 are recommended.”

Note: The types of pipe shall be in accordance with the specifications as stipulated in TB227.

 **Clause 17.1.2** should be revised and read as

“Piping shall be grey cast iron, ductile iron, steel or copper (see 17.1.9) and shall be in accordance with the specifications as stipulated in the TB227.”

Note: The types of pipe shall be in accordance with the specifications as stipulated in TB227.

 **The first paragraph of Clause 17.1.3** is not mandatory and for reference only.

Note: The detailed requirements and specifications for welding of steel pipe are not mentioned in the LPC Rules. Adoption of the Clause 21.3 BS 5306 : Part 2 standard is needed.

 **The last sentence of Clause 17.1.3** is not mandatory and for reference only.

Note: Alternative standards and local requirement are also adopted.

 **The last paragraph of Clause 17.1.6** should be revised and read as

“Where it is unavoidable for sprinkler water supply pipework to pass through an unsprinklered building at within 2m above finished floor level at ground floor, it shall be enclosed to protect against mechanical damage, with appropriate fire resistance or enclosed by dwarf brick walls covered by concrete slabs.”

Note: This is to suit local practice by adopting existing requirements with new alternatives.

 **Note to Clause 17.1.8** is not to be applied locally.

Note: This is not applicable to local climatic condition.

 **The first and second paragraphs of Clause 17.1.9** are not mandatory and for reference only.

Note: Pipe materials shall meet WSD's requirement.

 **The title of Clause 17.3.2** should be revised and read as

“False ceilings within OH occupancies”

Note: This is for the ease of understanding.

- ✎ **The first sentence of Clause 18.1** should be revised and read as  
“Schematic drawings and zoning plans of sprinkler installations shall be placed at the fire control centre / F.S. control room/caretaker (or at the main entrance of the building when the building has no fire control centre / F.S. control room / caretaker).”

Note: This is to align with the provision on fire control centre / F.S. control room.

- ✎ **Clause 18.2.1** should be revised and read as  
“A location plate of weather-resistant material and lettering including English and Chinese characters shall be fixed on the outside of the external wall as close as practical to the entrance nearest the control valve set(s).  
The plate shall bear the wording ‘**SPRINKLER STOP VALVE**’ ‘花灑總掣’ in letter no less than 50mm high.”

Note: This is to meet local requirement and provide Chinese translation to the signage.

- ✎ **The following wording of the label of Clause 18.2.2** should be added

‘SPRINKLER CONTROL VALVE’

“花灑控制閥”

Note: This is to provide Chinese translation to the signage.

- ✎ **The last two paragraphs of Clause 18.2.2** should be revised and read as

“The sign should be rectangular with letters not less than 15 mm high.

Where the stop valve is enclosed in an enclosure or inside a room, a second sign bearing the same words shall be provided on the outside of the enclosure or on the outside of the door as appropriate. Where the subsidiary stop valve is mounted inside a false ceiling, a second sign bearing the same words shall be provided right underneath the false ceiling.”

Note: This is to suit local practice and align with the requirements on FH/HR Installation as stated in FSCoP.

- ✎ **The following wording of the label of Clause 18.2.6.2** should be added

‘SPRINKLER PUMP SHUT-OFF’

“終止花灑泵運行”

Note: This is to provide Chinese translation to the signage.

- ✎ **The following wording of the label of Clause 18.2.6.3** should be added

‘SPRINKLER PUMP MOTOR SUPPLY – NOT TO BE SWITCHED OFF IN THE EVENT OF FIRE’

“花灑泵電源供應 — 在火警發生時切勿切斷電源”

Note: This is to provide Chinese translation to the signage.

**NA** Clause 18.2.4 is not to be applied locally.

Note: Water supply from sprinkler tank to other system is not acceptable.

**The following new Clause 18.2.8** should be added and read as

#### **“18.2.8 Signs for Sprinkler Inlets**

Each sprinkler inlet shall be affixed with a metal identification plate raised or engraved with English and Chinese characters. The frontage of each inlet enclosure shall be clearly and permanently indicated as follows:

**‘SPRINKLER INLET’**

‘花灑入水掣’

in English and Chinese characters of at least 50mm high. The areas to be served by the inlet shall be clearly and durably labeled both at the inlet and on the inlet enclosure.”

Note: This is to add the signage requirements for sprinkler inlet with a view to aligning with the same requirements for FS Inlet.

## **19 Commissioning**

**The first paragraph of Clause 19.1.1.2** should be revised and read as

“All installation pipework shall be hydrostatically tested without pressure drop for no less than 2 h, to a pressure of no less than 15 bar, or 1.5 times the maximum pressure to which the system will be subjected, (both measured at the highest pressure appears in the system which shall take into account the discharge pressure at pump outlets), whichever is the greater.”

Note: To suit local practice as pump rooms are commonly sited at basement level.

**Clause 19.1.2** should be revised and read as

“The system shall be tested once as specified in 20.2.2 and 20.3.2 and any faults shall be corrected.”

Note: This is to revise the wordings for clarification of the description of the requirement.

**R** **The first paragraph of Clause 19.2** is not mandatory and for reference only.

Note: System certification shall follow Cap.95B, Laws of Hong Kong and FSCoP.

**NA** **The second paragraph of Clause 19.2** is not to be applied locally.

Note: This is to meet local requirement.

## 21 Third party inspection

**NA** Clause 21 is not to be applied locally.

Note: This is to meet local requirement.

## Annex D Zoning of sprinkler installations

**NA** Item d) and e) of Clause D.2 are not to be applied locally.

Note: d) To incorporate FPA's clarification and recommendation; e) The provision of sprinkler shall follow approved FS Notes.

 Clause D.3.1 should be revised and read as

“The protected floor area per zone shall comply with requirement stipulated in Annex F.2.”

Note: This is to align with the requirement in Annex F.

 The first sentence of Clause D.3.2 should be revised and read as

“Each zone shall be independently controlled by a single zone subsidiary stop valve, installed in a readily accessible position in common area at the floor level of the zone it controls. Where it is impractical to install at the level served, the subsidiary stop valve may be installed at nearest alternative level.”

Note: This is to suit local practice and to provide accessible route for maintenance inspection.

 The first sentence of Clause D.3.7 should be revised and read as

“The monitoring devices required by D.3.4 and D.3.6 shall be electrically connected to a control and indicating panel, installed at Fire Control Room or location agreed with FSD, where the following indications and warnings shall be given or as per manufacturer's standards accepted by FSD:”

Note: This is to clarify the location of control and indicating panel.

 Item a of Clause D.3.7 should be revised and read as

“a) visual indicators to indicate that each monitored stop valve is in its correct operational position;”

Note: To suit the standard provision as most accepted AFA panels do not have green indicator for alarm zone indication.

**R** The second paragraph of Clause D.3.7 [*“Fire and fault signals ... manned location (see Annex I).”*] is not mandatory and for reference only.

Note: This is more practicable for local situation.

✎ **The following ‘Key’ of Figure D.1** should be revised and read as

“Key 2 Downstream stop valve”

“Key 4 Upstream stop valve”

Note: This is to correct typo.

## Annex E Special requirements for high rise systems

✎ **The last sentence of Clause E.1** should be revised and read as

“For high rise systems with hazards greater than OH3, FSD’s advice should be sought.”

Note: FSD’s advice shall be sought for non-standard system.

✎ **Clause E.2.1** should be revised and read as

“Other than in domestic buildings, high rise sprinkler systems shall conform to the requirements for Ordinary Hazard Group III protection.”

Note: The fire safety measures for high rise buildings shall commensurate with the additional risk incurred.

✎ **Clause E.2.4** should be revised and read as

“The main distribution pipes, including risers and drops, between

- a. the highest design point in an installation and
- b. the point of intersection of the main riser tee off to the zone subsidiary stop valve which is the nearest to the control valve

shall be sized by hydraulic calculations. The maximum friction loss shall not exceed 0.5 bar at a flow of 1000 l/min (see 13.3.4.2 and Figures E.2.4 (a) & E.2.4 (b) for High Rise Systems - Conceptual Schematic for Calculation of Distribution Pipework and Sprinkler Pumps Sizing).

Where sprinkler protection is at various floor levels in an installation, the allowable pressure loss between

- a. the design points on lower levels and
- b. the point of intersection of the main riser tee off to the zone subsidiary stop valve which is the nearest to the control valve

might be increased by an amount equal to the difference in static head gain between the sprinklers at the level concerned and the highest sprinkler in the installation.”

Note: This is to in line with TB210.7.1 and Table TB210.T5.

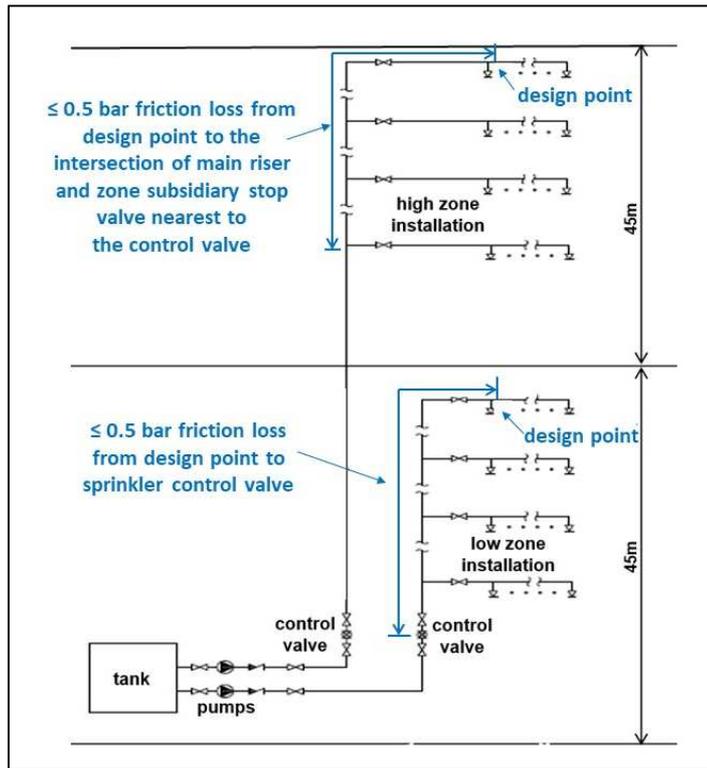


Figure E.2.4 (a) Distribution pipework friction loss calculation

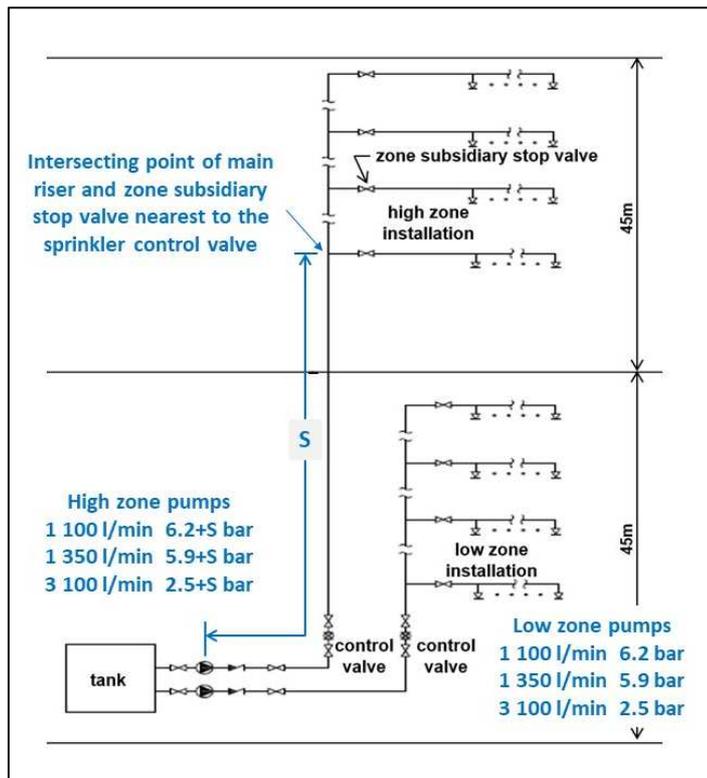


Figure E.2.4 (b) Pump calculation

Remark:

This is a simplified schematic not intending to indicate all pumps, valves, equipment, etc.

 **Clause E.3.2** should be revised and read as

“The water supply shall be designed to achieve a minimum pressure and flow condition as specified in Table 6, at the point of intersection of the main riser tee off to the zone subsidiary stop valve which is the nearest to the control valve.”

Note: This is to in line with TB210.7.1 and Table TB210.T5.

 **Clause E.3.3** should be revised and read as

“Where the pumps take water from a storage tank, the characteristic of pre-calculated LH and OH systems shall conform to Table TB210.T5.”

Note: This is to in line with TB210.7.1 and Table TB210.T5.

 **Clause E.3.4** should be revised and read as

“Pump performance and water supply characteristics for pre-calculated installations.

Automatic pumps <sup>(Note 1)</sup> shall have characteristics in accordance with Table TB210.T5. The pressure loss due to friction and static head between

- a. the water supply and
- b. the point of intersection <sup>(Note 2)</sup> of the main riser tee off to the zone subsidiary stop valve.

shall be added.

For booster pumps supply or gravity tank supply, the water supply shall be designed to achieve a minimum pressure and flow condition at the point of intersection of the main riser tee off to the zone subsidiary stop valve, as specified in Table 6, taking  $P_s$  to be the pressure difference equivalent to the height of the highest sprinkler above the point of intersection of the main riser tee off to the zone subsidiary stop valve.

The water supply characteristics shall be determined by a hydraulic calculation of the pipework upstream of the point of intersection of the main riser tee off to the zone subsidiary stop valve, at the higher and lower flow rates specified in Table 6, and shall include calculations at the water supply datum point. (See Figure E.2.4 (a) and (b) of the Technical Guidance)

The distribution pipe on upstream side of the design point(s) may have to be adjusted so as to match the water supply characteristic by:

- a. suitably sizing (i.e. not to oversize) the distribution pipe on the upstream side of the design point(s), and/or
- b. fitting an orifice plate(s) in the distribution pipe on the upstream side of the design point.

The performance characteristics of the water supply should be such that whilst satisfying the rate of flow and pressure required at the highest and most remote parts of the protected

premises, the rate of flow will be so controlled that there is not an excessive rate of discharge at the lower levels of the installation.

NOTE 1. Pressures are taken at the pump outlet or the relevant stage of multi-stage pumps, on the delivery side of any orifice plate.

NOTE 2. The point of intersection of the main riser tee off to the zone subsidiary stop valve indicates the nearest one to the control valve.”

Note: This is to clarify the requirements; also see Clause 7.3.1 of EN 12845.

 **Key 10 of Figure E.1** should be revised and read as  
“10. Water flow alarm switch test valve and zone drain valve.”

Note: This is to correct typo.

 **Key 2. of Figure E.2** should be revised and read as  
“2. Booster pump”

Note: This is to align with clause 3.15.

## Annex F Additional measures to improve system reliability and availability

 **Clause F.1** should be revised and read as  
“The following clauses are normative.”

Note: This is to suit local practice.

 **Clause F.3** should be revised and read as  
“Sprinkler installations shall be of the wet pipe type or pre-action type and any subsidiary dry pipe extension shall comply with 11.5.”

Note: This is to suit local practice.

 **Clause F.4** is not to be applied locally.

Note: This is to suit local practice.

 **Clause F.5** should be revised and read as  
“During servicing and maintenance of the installation alarm valves, the sprinkler installation shall be fully operational in all aspects except the operation of water alarm gong.”

Note: This is to suit local practice.

 **The first paragraph of F.7** should be revised and read as

“Stages with a total height no greater than 12m might be protected by sprinklers. In addition to sprinklers at the roof or ceiling, sprinklers shall be fitted under the grid, the flies, the stage and any other obstruction to the discharge from the roof or ceiling sprinklers. In stage areas of theatres, the coverage area of a sprinkler shall be not more than 9.0m<sup>2</sup>. Other provision such as drencher system as applicable should be referred to licensing requirement.”

Note: This is to suit local practice stated in current BS 5306 Part2 Clause 26.9.2 and Note 2 of Table 70.

 **The first paragraph of F.8** is not mandatory and for reference only.

Note: The arrangement of shutting down of installation shall follow FSCoP.

## Annex H Sprinkler systems monitoring

 **The second paragraph of Clause H.1** [*“All devices used for ... a common indication.”*] is not mandatory and for reference only.

Note: In local practice, the requirement of IP54 and upper limit for all monitoring devices are not mandatory.

 **The last paragraph of Clause H.2.2** should be revised and read as

“For normally open valves, the alarm shall activate once the valve is partially closed.”

Note: This is to suit local practice.

 **Clause H.2.7** is not to be applied locally.

Note: This is inapplicable to local climatic condition

## Annex I Transmission of alarms

 **The First two paragraphs of Clause I.1** should be revised and read as

“Alarms, as specified in this standard, shall be connected to the fire alarm panel in the fire control room or at the main entrance of the building and transmitted onwards depending on the importance of the alarm.

Alarms shall transmit to a permanently attended location, on or off the premises, or to a responsible person in such a way that immediate corrective action can be taken. If a direct connection to the FSCC is required, only the type A alarms shall be linked to the FSCC.”

Note: This is to suit local practice.

**NA** The clause of row 3 of Table I.1 [*“Low pressure in town main”*] is not applied locally.

**NA** The clause of row 5 of Table I.1 [*“Low level priming tank”*] is not applied locally.

**R** The clause of row 6 of Table I.1 should be revised and read as

<i>“Electric pump set</i>	<i>Alarm type</i>
- Power supply on	B
- Pump Running	A
- Pump Failed	B”

Note: This is to suit local practice.

**R** The clause of Last Row of Table I.1 [*“Monitored sprinkler system”*] should be revised and read as

<i>“Monitored sprinkler systems</i>	<i>Alarm type</i>
- Partially closed stop valves	B
- Liquid levels	B
- Low pressure	B
- Power failure	B”

Note: This is to suit local practice.

**R** Clause I.2 should be revised and read as

*“Signals from water flow alarms and/or alarm valves shall be shown as fire alarms (Alarm level A in Table I.1). Technical faults such as power failure, which could prevent the system operating correctly in case of fire, shall be shown as trouble alarms (Alarm level B in Table I.1)”*

Note: This is to suit local practice.

## **Annex J Precautions and procedures when a system is not fully operational**

**R** Clause Annex J is not mandatory and for reference only.

Note: The management company should work out its own precautionary measures and procedures to deal with a system that is not fully operational.

## **Annex K Twenty-five year inspection**

**R** Clause Annex K is not mandatory and for reference only.

Note: It is not a local mandatory requirement.

## Annex L Special technology

 **Clause Annex L** is not mandatory and for reference only.

Note: Informative material is for reference.

## Annex M Independent certification body

 **Clause Annex M** is not mandatory and for reference only.

Note: This is to meet local requirement.

## Annex N Control Mode Specific Application Sprinklers: CMSA

 **Clause Annex N** is not mandatory and for reference only.

Note: Informative material is for reference.

## Annex O Example of P&ID

 **Clause Annex O** is not mandatory and for reference only.

Note: Informative material is for reference.

## Annex P ESFR sprinkler protection

 **Clause Annex P** is not mandatory and for reference only.

Note: Informative material is for reference.

## Annex NA Guidance and material related to UK Practice

 **Annex NA** is not applied locally.

Note: UK practice is different from local requirement.

## PART 3 – Technical Bulletins in the LPC Rules which are either ‘not to be applied locally’, ‘to be revised’ or ‘for reference only’

### TB201: 2015: 1 Suitable sprinkler components and services

 **TB 201** is not mandatory and for reference only.

Note: FSI and Fire Safety Products shall be of an accepted type as required by the FSD.

### TB203: 2015: 1 Care and maintenance of automatic sprinkler systems

 **Whole section of TB203, except TB203.1.4**, is not mandatory and for reference only.

Note: System certification shall follow FS (IE) Regulation and FSCoP.

 **The first paragraph of TB203.1.4** should be revised and read as

“Sufficient spare sprinklers and major component, such as Multiple Jet Control Valve (MJC) if applicable, shall be kept in Fire Control Room or sprinkler control valve cabinet on premises as replacements for operated or damaged sprinklers. Spare sprinklers, together with sprinkler spanners as furnished by the supplier, shall be housed in cabinet located in a prominent and easily accessible position where the ambient temperature does not exceed 40°C.”

Note: This is to suit local practice.

### TB204: 2015: 1 Sprinkler system grading

 **TB204** is not mandatory and for reference only.

Note: All components should be approved by the FSD before using in Hong Kong.

### TB205: 2003: 1 Consultation and acceptance for sprinkler system approval by fire insurers

 **TB205** is not mandatory and for reference only.

Note: This is to suit local practice.

**NA** **TB206.2** is not to be applied locally.

Note: FS Code should be followed.

**NA** **TB206.3** is not to be applied locally.

Note: FS Code should be followed.

**NA** **TB206.4.1** is not to be applied locally.

Note: FS Code should be followed.

 **TB206.4.2** should be revised and read as

“Permitted Exception:

Rooms protected by other automatic extinguishing systems (e.g. gas, powder and water spray)

Obligatory exceptions:

Sprinkler protection shall not be provided in the following parts of a building or plant:  
grain silos or grain bins inside buildings forming part of a corn mill, distillery, maltings or oil mill;

ovens, hovels and kilns in pottery, earthenware, bricks, tile and glass works;

areas, rooms or places where the water discharged from a sprinkler may present a hazard.

Lifts complying with Lift CoP

#### COMMENTARY AND RECOMMENDATIONS

Sprinkler should not be fitted over salt baths, metal melt pans or frying ranges, or indirectly drains into them nor should water pipes be fitted in these positions.”

Note: To retain the valid condition of this BSEN standard and adopt Section 4.2.1 of BS 5306 Part 2 which is the local practice.

 **TB206.4.3** should be revised and read as

“Sprinkler protection need not be provided for all external canopies where goods are not stored or handled.”

Note: To suit local practice and to clarify that there is no need for sprinkler protection under canopies.

**NA** **TB206.4.4** is not to be applied locally.

Note: FS Code should be followed.

**NA** **TB206.4.5** is not to be applied locally.

Note: FS Code should be followed.

**NA** TB206.5 is not to be applied locally.

Note: This is to meet local requirement.

**NA** TB206.6 is not to be applied locally.

Note: The publications listed do not form part of local statutory requirements.

## TB207: 2015: 1 The selection of sprinkler heads

**The term of first column of Table TB207.T1 [“Ordinary hazards (OH)”] should be revised and read as**

**“Ordinary Hazard (OH) (Including ceiling voids)”**

Note: This is to indicate the type clearly.

**The first sentence of “Note 5” of Table TB207.T1 should be revised and read as**

**“Concealed or recessed sprinkler should not be used on the false ceiling with positive air pressure in the space above the false ceiling.”**

Note: This is to clarify the requirements.

**The following paragraph is added after Table TB207.T1**

**“The use of flush, recessed and concealed sprinklers shall comply with the following:**

**Flush sprinklers of a type approved for use by the FSD and installed in accordance with the manufacturer’s instructions shall be generally accepted in light and ordinary hazards up to (and including) OH Group III; and**

**Recessed and concealed sprinklers with fast response heat sensing element of a type approved for use by the FSD and installed in accordance with the manufacturer’s instructions shall be generally accepted in light and ordinary hazards up to (and including) OH Group III. Recessed and concealed sprinklers shall not be used in the areas required to provide fast response type sprinkler.”**

Note: This is to suit local requirement and incorporate the FSD CL No.1/2001.

**R** **The first paragraph of TB207.4.7 [“Quick response sprinkler shall be ... no less than 5m in height.”] is not mandatory and for reference only.**

Note: In current practice, the use of quick response sprinkler in life safety system is not mandatory.

## TB208: 2015: 1 Supplementary requirements for sprinkler installations which can operate in the dry mode

 **TB208.3.5** is not mandatory and for reference only.

Note: In current practice, the testing and commissioning of Fire Services Installations and Equipment shall be carried out by registered FSI contractors according to relevant FSD requirements. These Clauses shall be taken as reference for good practice.

 **TB208.5.3** is not mandatory and for reference only.

Note: In current practice, the testing and commissioning of Fire Services Installations and Equipment shall be carried out by registered FSI contractors according to relevant FSD requirements. These Clauses shall be taken as reference for good practice.

 **TB208.5.9** is not mandatory and for reference only.

Note: In current practice, the testing and commissioning of Fire Services Installations and Equipment shall be carried out by registered FSI contractors according to relevant FSD requirements. These Clauses shall be taken as reference for good practice.

## TB210: 2015: 1 Automatic sprinkler pump installation

 **The third paragraph of TB210.1** [*“Pumps shall be driven ... whichever is the greater.”*] should be revised and read as

*“Pump shall be driven either by electric motors or diesel engines, with a power rated to give 10% more power in addition to the hydraulic power required for the pump flow in revised Table TB210.T1 of TB210.6.2.1.”*

Note: This is to meet local requirement and align with the requirement for other automatic fixed installation using water.

 **The last paragraph of TB210.1** should be revised and read as

*“The coupling between the driver and the pump of horizontal pump sets shall be of a type which ensures that either can be removed independently and in such a way that pump internals can be inspected or replaced without affecting suction or discharge piping. End suction pumps should preferably be of the 'back pull-out' type. Pipes shall be supported independently of the pump.”*

Note: This is to meet local requirement.

 **Commentary and Recommendations on TB210.1** is not to be applied locally.

Note: This is to meet local requirement.

**NA** The last paragraph of TB210.2 is not to be applied locally.

Note: This is to suit local practice.

**NA** Commentary and Recommendations on TB210.2 is not to be applied locally.

Note: This is to suit local practice.

 **TB210.3.1.1** should be revised and read as

“Pump sets shall be housed in a compartment used for no other purpose than housing fire protection systems. The pump room for all sprinkler pumps other than transfer pumps shall be one of the following:

a readily accessible compartment within a separate building having a wall of appropriate fire resistance;

a readily accessible compartment within building adjacent to a sprinkler protected building;

a readily accessible compartment within a sprinkler-protected building.”

Note: The fire resistance period of a pump room shall meet the requirements of FS Code.

 **Commentary and Recommendations on TB210.3.1.1** should be revised and read as

“The pump room shall be accessible via an exit, exit route and/or required staircase in compliance with the means of escape requirements in FS Code. Access via a cat ladder is not acceptable.”

Note: This is to clarify the local requirements of a pump room.

 **The underlined wording of TB210.3.1.2** should be revised and read as

“Pump houses ..... within the pump house where applicable:

.....

Additionally the following devices shall be located adjacent to the controller: ”

Note: This is to clarify the requirement of pump room.

 **The following new paragraph for TB210.3.1.2** should be added at the end

“Requirement on Sprinkler pump room

The sprinkler pumps and the jockey pump shall be housed in suitable dedicated pump room. The access to the pump room shall be via an exit, exit route and/or required staircase in compliance with the Means of Escape requirements in the Code of Practice for Fire Safety in Buildings. Access via a cat ladder is not acceptable. Such pump room shall be clearly marked in English and Chinese characters for its purpose and suitably locked to prevent unauthorized tampering of the pumps. A lockable access door shall be provided to the pump room. The door opening shall be of sufficient dimensions to permit easy access of personnel and the removal and replacement of equipment within the pump room.

There shall be sufficient internal clear space and headroom (not less than 2m floor to ceiling

clear height) for carrying out installation, servicing and maintenance safely. A clear space of not less than 450mm shall be maintained on two sides of each set of sprinkler pump and driver (excluding jockey pumps), i.e. one of the longer sides of the pump and driver, and the side facing the end of the driver. If two nos. of sprinkler pumps had been installed closely, the clear space of not less than 450mm between two sprinkler pumps can be shared.

A clear space of not less than 600mm shall be maintained in front of the pump control panel. The switches, buttons and indicators at the pump control panel shall be installed at a level between 300mm and 2,000mm above the finished floor level. The pump panel and associated power supply facilities are preferable to be located near the entry.”

Note: This is to standardize the requirement for sprinkler pump room for installation and maintenance work.

✎ **The first sentence of first paragraph of TB210.3.2** should be revised and read as  
“Compartments for sprinkler pump sets shall be sprinkler protected or protected by fire detection system in accordance with building plan approved.”

Note: This is to meet local requirement.

✎ **The third paragraph of TB210.3.2** [“A drain and test valve ... a practical test of the alarm system.”] should be revised and read as  
“A drain and test valve, which yields a flow equivalent to one sprinkler with the smallest nominal k factor as the sprinkler downstream of the test valve, shall be fitted downstream of the flow alarm to permit a practical test of the alarm system.”

Note: This is to meet local requirement.

📖 **Commentary and Recommendations on TB210.3.5** is not mandatory and for reference only.

Note: The lighting design shall follow local requirement and practice for plant room.

✎ **TB210.3.6** should be revised and read as  
“All test lines for pump shall be discharged to a permanent drainage facility or sprinkler tank.”

Note: This is to suit local practice.

🚫 **TB210.3.7** is not to be applied locally.

Note: The practice of waste water disposal shall meet local drainage requirement.

 **The first three paragraphs of TB210.5.1** should be revised and read as

“A stop valve shall be fitted in the pump suction pipe unless the maximum water level is lower than the pump. A non-return valve and a stop valve shall be fitted in the delivery pipe of each pump. By-pass with non-return valve and two stop valves shall be provided for sprinkler suction pump if sprinkler tank is located at the floor level above the sprinkler control valve. The installation of by-pass shall facilitate the its by-pass function. Flexible connector shall be installed at suction and discharge side of each pump.

In the case of booster pumps a by-pass shall be installed around the pumps with a non-return valve and two stop valves all of the same diameter as the trunk main (pump delivery pipe).

Any taper pipe fitted to the pump outlet shall expand in the direction of flow. Valves on the delivery side shall be fitted after any taper pipe. ”

Note: This is to suit local practice and to clarify the definition of “trunk main”.

 **The last sentence of paragraph 5 of TB210.5.1** [*“The outlet shall be clearly visible ... shall be separate.”*] should be revised and read as

“The outlet of cooling pipe shall be clearly visible and where there is more than one pump, the outlets shall be separate. Alternatively, if separate cooling pipe of each pump return to the sprinkler tank through a common header, the diameter of common header shall be at least twice of the cooling pipe.”

Note: This is to provide details on arrangement for the cooling of water pump.

 **The first sentence of TB210.5.2** should be revised and read as

“Pump set pressure gauges shall be in accordance with BS EN 837-1 or other standards accepted by FSD.”

Note: This is to include other standards accepted by FSD.

 **TB210.5.3 to TB210.5.5 and Figure TB210.F1** are not mandatory and for reference only.

Note: This is to suit local practice.

 **The first sentence of TB210.6.1** should be revised and read as

“Whenever possible, pumps shall be used, installed with a positive suction head – that is, in accordance with the following:”

Note: This is to allow a flexibility for suiting local situation.

- ✎ **The second paragraph of TB210.6.2.1** [*“The pump suction ... see Figure TB210.F2.”*] should be revised and read as

“The pump suction shall be connected to a straight or taper pipe of appropriate angle. When the suction pipe and pump suction flange are not of the same size, they shall be connected to an eccentric taper reducer or taper pipe with horizontal top side in such a way to avoid air pockets. For suction lift condition, the pump suction straight or taper pipe shall be at least two nominal diameters long (2xD) and the taper pipe where applicable shall have an inclined angle not exceeding 15°, see Figure TB210.F2. For positive head condition, the taper pipe where applicable shall preferably have an inclined angle not exceeding 15°. Valves shall not be fitted directly to the pump inlet.”

Note: This is to suit local practice.

- ✎ **The fourth paragraph of TB210.6.2.1** [*“Proprietary pipe taper fittings... see Figure TB210.F3.”*] should be revised and read as

“For suction lift condition, pipe taper fittings with a combined angle of taper exceeding 15° may be used, providing the taper outlet is connected to a pump suction inlet by a horizontal straight section of pipe which is at least four times the nominal diameter in length (4 x D), see Figure TB210.F3.”

Note: To suit local practice, locally made pipe taper fittings are acceptable.

- ✎ **The fifth paragraph of TB210.6.2.1** [*“Bends or changes ... long sweep bends.”*] should be revised and read as

“Bends or changes in the direction of pipework, upstream of the pump suction inlet taper, shall be formed using pipe bends or elbows.”

Note: This is to suit local practice and provide greater flexibility for installation.

- ✎ **The sixth paragraph of TB210.6.2.1** [*“Pump suction isolating valves ... BS EN 12288.”*] should be revised and read as

“Pump suction isolating valves shall be of the gate valve type, complying with BS EN 1171, BS 5154, BS EN 1984, BS EN 12288 or other equivalent standard.”

Note: To allow flexibility to suit local practice, other types of isolating valve with equivalent standard are also acceptable.

- ✎ **The first sentence of the eighth paragraph of TB210.6.2.1** [*“A foot valve ... the suction pipe where either:”*] should be revised and read as

“A foot valve or check valve shall be fitted to the suction pipe where either:”

Note: Check valve is a type of foot valve and can be used as foot valve.

 **Table TB210.T1** should be revised and read as

Table TB210.T1 (Revised) Pump suction and flow rating (replaces BS EN Table 14)				
Pipework	Pump type	Hazard Class	Pump flow <sup>(1)</sup>	Pump inlet condition
Pre-calculated	Suction	LH/OH	Nominal flow from Table TB210.T5	Water supply at low water level X (See BS EN Clause 9.3.5)
Pre-calculated	Booster	LH/OH	Nominal flow from Table TB210.T5	Water supply at low water level X (See BS EN Clause 9.3.5)
Pre-calculated	Suction	HH	1.4 x Maximum demand flow <sup>(2)</sup> from Table 7	Water supply at low water level X (See BS EN Clause 9.3.5)
Pre-calculated	Booster	HH	1.4 x Maximum demand flow <sup>(2)</sup> from Table 7	Water supply at low water level X (See BS EN Clause 9.3.5)
Fully calculated	Suction	All	Maximum demand flow <sup>(2)</sup>	Water supply at low water level X (See BS EN Clause 9.3.5)
Fully calculated	Booster	All	Maximum demand flow <sup>(2)</sup>	Water supply at low water level X (See BS EN Clause 9.3.5)

Note 1: A pump duty point may be stated on the nameplate which is not the nominal or maximum demand flow providing that it can be demonstrated that the pump flow characteristic can exceed the system maximum demand flow conditions.

Note 2: Maximum demand flow is defined in “BS EN Clause” 3.42 as ‘The flow at the point of intersection of the pressure-flow demand characteristic of the most favourable area of operation and the water supply pressure-flow characteristic with the suction source at its normal water level’.

Note: Town main with booster pump is not acceptable.

 **The last sentence of the third paragraph of “Commentary and Recommendations on TB210.6.2.1”** [“Stop valves, ... see Figure TB210.F5.”] should be revised and read as “Stop valves, where necessary, should be installed upstream of any foot valves or check valves which are located external to the water storage, see Figure TB210.F5.”

Note: Check valve is a type of foot valve and can be used as foot valve.

 **The title of Figure TB210.F4** should be revised and read as “Typical suction lift foot valve arrangement”

Note: This is to clarify the title.

- ✎ **The title of Figure TB210.F5** should be revised and read as

“External foot / check valve and stop valve assembly”

Note: Check valve is a type of foot valve and can be used as foot valve.

- ✎ **The second and third paragraphs of TB210.6.2.2** [*“For LH and OH pre-calculated ... the suction pipe maximum water velocity shall not exceed 1,8m/s when the pump is operating at the follow given in Table TB210.T1.”*] should be revised and read as

“For LH and OH pre-calculated pipework systems the suction pipe for pumps other than booster pumps, intermediate booster pumps and jockey pumps shall be either:

an equivalent length of the suction pipe and pipe fittings of not more than 30m. Each pipe elbow, bend or pipe fitting for change the direction of water flow shall be counted as 3m of straight pipe and the suction pipe and pipe fittings shall be sized as specified in Table TB210.T2; or

sized such that the maximum water velocity shall not exceed 1.8m/s when the pump is operating at the flow given in Table TB210.T1.

For all hydraulically calculated pipework systems the suction pipe maximum water velocity for pumps other than booster pumps, intermediate booster pumps and jockey pumps shall not exceed 1.8m/s when the pump is operating at the flow given in Table TB210.T1.”

Note: This is to clarify the requirement.

- ✎ **The last paragraph of TB210.6.2.2** should be revised and read as

“A single suction header pipe may be used to feed more than one pump. The header pipe shall be sized to suit the maximum system demand flow (or nominal flow if pre-calculated system). Branches connecting pumps (other than the branch connecting jockey pump) to the header pipe shall be of the same nominal size as the header and shall include an isolating valve.”

Note: This is to suit local practice and provide a clear requirement.

- ✎ **The second paragraph of TB210.6.2.3** [*“For all suction pipes ... more than 30m.”*] should be revised and read as

“For all suction pipes for pumps other than booster pumps, intermediate booster pumps and jockey pumps the equivalent length of the suction pipe and pipe fittings shall not be more than 30m. Each pipe elbow, bend or pipe fitting for change the direction of water flow shall be counted as 3 m of straight pipe.”

Note: This is to meet local requirement and adopt the 29<sup>th</sup> edition of FOC Rules clause 2542 for the equivalent length of pipe fittings.

- ✎ **The seventh paragraph of TB210.6.2.3** [*“The suction pipe ... with TB210.6.2.4.”*] should be revised and read as

*“The suction pipe shall be positioned in the tank or reservoir in accordance with BS EN Figure 4 and BS EN Table 12 and BS EN Table 13, as appropriate. For arrangement of Figure TB210.F4, a foot valve shall be fitted at the lowest point on the suction pipe above the vortex inhibitor / strainer if fitted. Each pump shall have automatic priming arrangement in accordance with TB210.6.2.4.”*

Note: Check valve is accepted as a type of foot valve. To clarify the location of foot valve.

- ✎ **The heading of second column of Table TB210.T4** should be revised and read as

*“Minimum water volume  
Litres”*

Note: This is to clarify that the clause refers to water volume, not tank capacity.

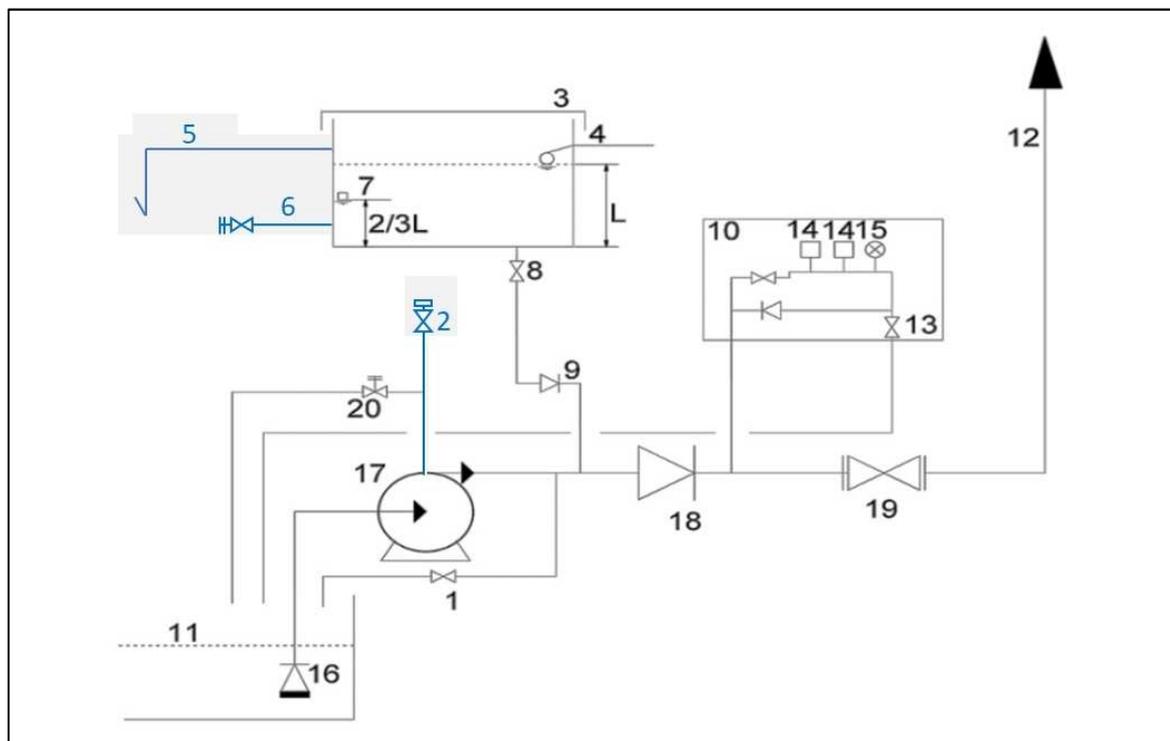
- ✎ **The following new notes for Table TB210.T4** should be added

*“Note 1: minimum water volume is the water volume from top of outlet pipe to the normal water level.*

*Note 2: The pump priming tank shall be a type of water tank accepted by WSD.”*

Note: This is to clarify the calculation of water volume and to provide requirements for the tank.

- ✎ **Figure TB210.F6** should be revised and read as



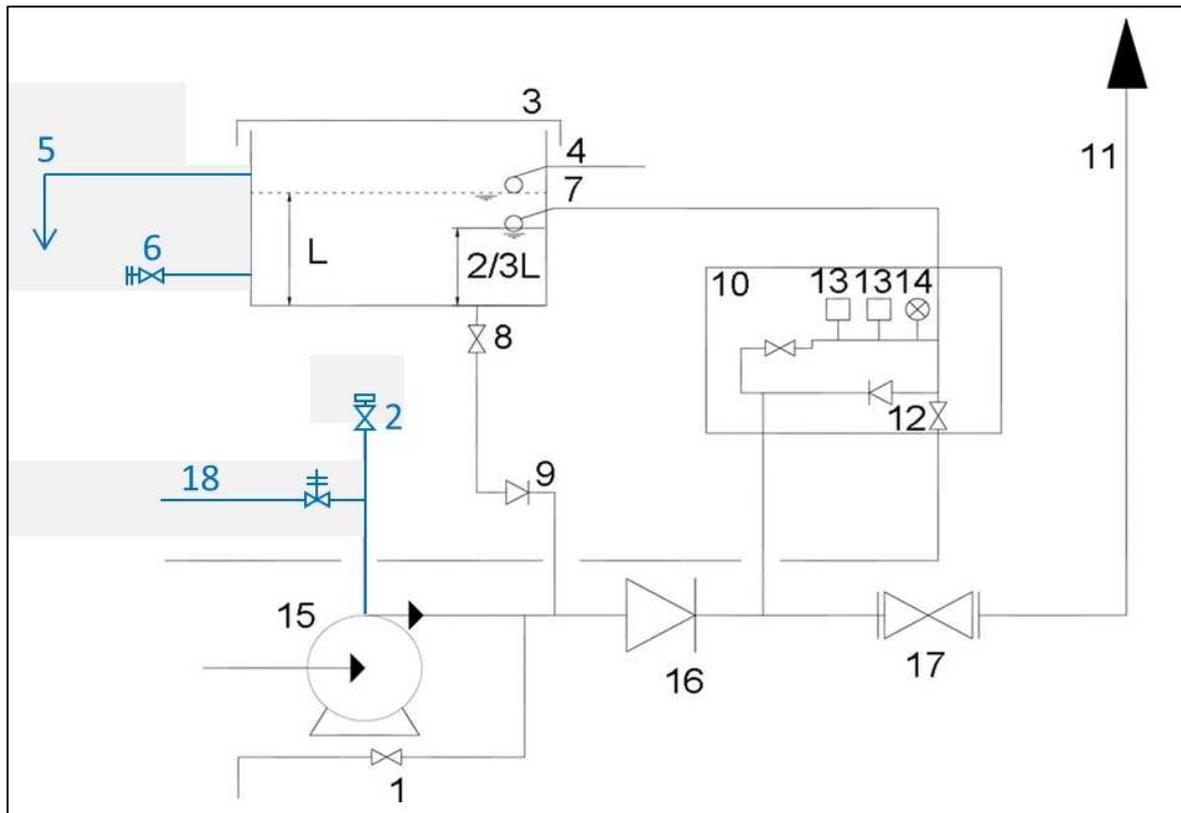
**Figure TB210.F6 (Revised) Typical pump priming arrangement for suction lift**

**Key:**

- |   |   |                                    |
|---|---|------------------------------------|
| 1. Test and drain valve                 | 2. Automatic air vent                         | 3. Pump priming tank               |
| 4. Inflow                               | 5. Overflow                                   | 6. Drain valve (NC)                |
| 7. Low water level pump starting switch | 8. Priming supply stop valve                  | 9. Priming supply non-return valve |
| 10. Pump start arrangement              | 11. Suction tank                              | 12. Installation trunk main        |
| 13. Test valve                          | 14. Pressure switch for pump starting         | 15. Pressure gauge                 |
| 16. Foot valve and strainer             | 17. Main pump                                 | 18. Pump delivery non-return valve |
| 19. Pump delivery stop valve            | 20. Pressure relief valve & minimum flow line |                                    |

Note: This is to meet WSD's requirements.

 **Figure TB210.F7** should be revised and read as



**Figure TB210.F7 (Revised) Typical pump priming arrangement for suction lift**

**Key:**

- |   |                              |  |
|---|------------------------------|--|
| 1. Test and drain valve                     | 2. Automatic air vent        | 3. Pump priming tank   |
| 4. Inflow                                   | 5. Overflow                  | 6. Drain valve   |
| 7. Low water level pump starting connection | 8. Priming supply stop valve | 9. Priming supply non-return valve                                   |
| 10. Pump start arrangement                  | 11. Installation trunk main  | 12. Test valve   |
| 13. Pressure switch for pump starting       | 14. Pressure gauge           | 15. Main pump  |
| 16. Pump delivery non-return valve          | 17. Pump delivery stop valve | 18. Pressure relief valve & minimum flow line back to sprinkler tank |

 **The first paragraph of TB210.7.1 and TB210.T5** should be revised and read as

“Where the pumps take water from a storage tank, the characteristics of pre-calculated LH and OH systems shall conform to revised Table TB210.T5 below. Except for nominal data, the pressure loss due to friction and static head between the water supply and the control valve set shall be included.”

Hazard class	(Non-high rise system) Height difference from pump – h or (High rise system) Lowest sprinkler in installation – h to highest sprinkler in installation m	Nominal data		Characteristics not less than			
		Pressure <sup>2</sup> bar	Flow <sup>3</sup> l/min	Pressure <sup>2</sup> bar	Flow l/min	Pressure <sup>2</sup> bar	Flow l/min
LH (Wet or pre-action)	$h \leq 15$	1,5	300	3,7	225	-	-
	$15 < h \leq 30$	1,8	340	5,2	225	-	-
	$30 < h \leq 45$	2,3	375	6,7	225	-	-
OH1 Wet or pre-action	$h \leq 15$	1,2	900	2,2	540	2,5	375
	$15 < h \leq 30$	1,9	1 150	3,7	540	4,0	375
	$30 < h \leq 45$	2,7	1 360	5,2	540	5,5	375
OH1 Dry or alternate OH2 Wet or pre-action	$h \leq 15$	1,4	1 750	2,5	1 000	2,9	725
	$15 < h \leq 30$	2,0	2 050	4,0	1 000	4,4	725
	$30 < h \leq 45$	2,6	2 350	5,5	1 000	5,9	725
OH2 Dry or alternate OH3 Wet or pre-action	$h \leq 15$	1,4	2 250	2,9	1 350	3,2	1 100
	$15 < h \leq 30$	2,0	2 700	4,4	1 350	4,7	1 100
	$30 < h \leq 45$	2,5	3 100	5,9	1 350	6,2	1 100
OH3 Dry or alternate OH4 Wet or pre-action	$h \leq 15$	1,9	2 650	3,0	2 100	3,5	1 800
	$15 < h \leq 30$	2,4	3 050	4,5	2 100	5,0	1 800
	$30 < h \leq 45$	3,0	3 350	6,0	2 100	6,5	1 800

NOTE 1: For high rise system definition see BS EN “12845:2015 Clause” 3.32  
“NOTE 2: For high rise installation, an additional pressure – S, refer to pressure loss due to friction and static head as stated in Clause E3.4 of Annex E in this Technical Guidance, shall be added.  
NOTE 3: Pump (including any orifice plates) must conform to the nominal rating within limits of + 5% on the flow at the nominal pressure rating.”

Note: To suit local practice, the T5 was revised. For the newly added NOTE 3, it is to incorporate FPA’s clarification.

**NA** TB210.7.2 is not to be applied locally.

Note: To suit local practice, the clause 10.7.2 of BS EB 12845:2015 shall be retained.

**NA** TB210.7.4 is not to be applied locally.

Note: Booster town main is not accepted by WSD.

**TB210.8.2.1** should be revised and read as  
“All the electrical work shall comply with EECOP.”

The supply to the pump controller shall be solely for use of the sprinkler pump set and separate from all other connections (a common power supply for all pumps of fire service installations in the same room may be accepted). The electrical supply to the pump controller shall be backed up by an emergency generator. When no emergency generator is required and subject to the permission of FSD and the electrical utility, the electrical supply to the pump controller shall be taken from the input side of the main switch on the incoming supply to the premises and where this is not permitted, by a connection from the main switch.”

Note: This is to meet local requirement.

**TB210.8.2.2** should be revised and read as  
“All cables for sprinkler system shall comply with the relevant requirements in Circular Letter No. 2/2017 for sprinkler system.”

Note: This is to meet local requirement for cables.

**The following new paragraph for TB210.8.3.1** should be added at the end  
“The main switchboard should be situated where access by the fire services personnel is readily available for isolation of non-essential power supplies to a building.”

Note: This is to suit local practice.

**The following wording of the label of TB210.8.3.2** should be added  
SPRINKLER PUMP MOTOR SUPPLY – NOT TO BE SWITCHED OFF  
IN THE EVENT OF FIRE  
“花灑泵電源 – 火警時不要切斷”

Note: This is to provide Chinese translation to the signage.

**TB210.8.7.1** should be revised and read as  
“The following conditions shall be monitored (see annex I)  
power supply on;  
pump running; and  
pump failed.”

Note: This is to follow similar requirements on FH/HR systems as stated in FSCoP.

 **TB210.8.7.2** should be revised and read as

“All monitored conditions shall be displayed at the pump control panel, and repeated at the fire control room or at a panel at the main entrance of the building.”

Note: This is to follow similar requirements on FH/HR systems as stated in FSCoP.

 **Figure TB210.F10** is not to be applied locally.

Note: This is to suit local practice.

 **The following new sentence** should be added at the beginning of the second paragraph of TB210.9.6

“The fuel tank requirement shall comply with local regulation.”

Note: This is to meet local requirement.

 **Commentary and Recommendations on TB210.9.6** is not to be applied locally.

Note: The practices of fuel storage and handling, etc. shall meet local requirements regarding dangerous goods.

 **The first sentence of the first paragraph of TB210.10.2** should be revised and read as

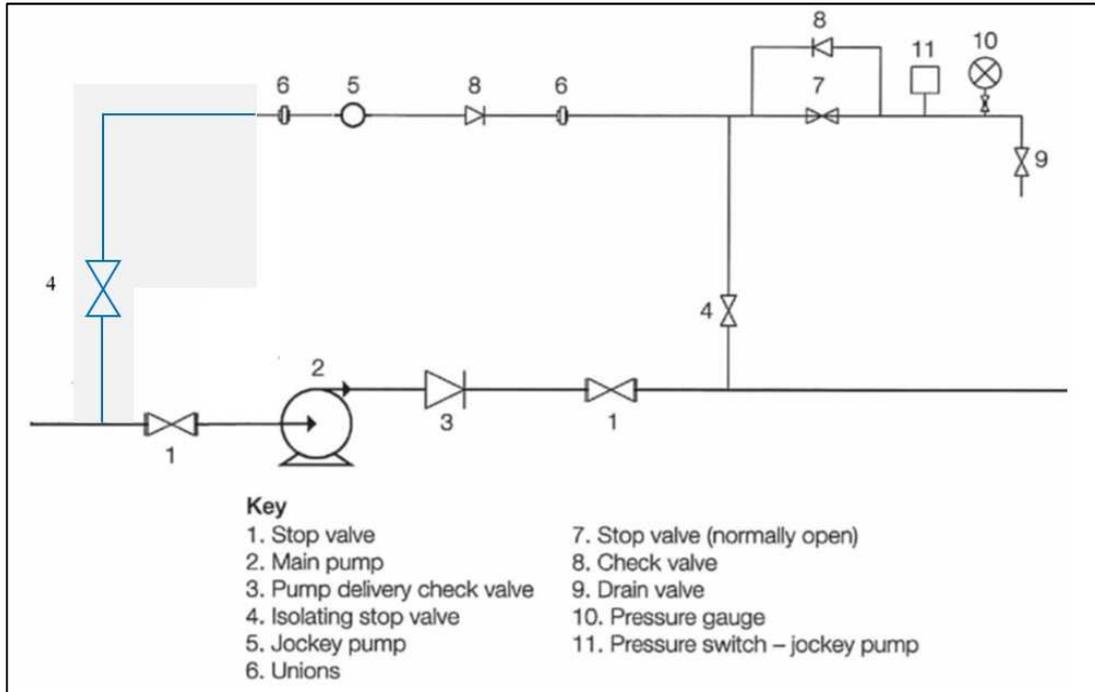
“Where sprinkler pumps operate under positive head conditions, jockey pumps installed to maintain pressure in the trunk main may draw from the common suction pipe for sprinkler pumps.”

Note: This is to clarify that the suction pipe for sprinkler pump can feed the jockey pump.

 **The second paragraph of TB210.10.2** is not to be applied locally.

Note: To meet local requirement, separate feed connection is not required for jockey pump.

✎ **Figure TB210.F11** should be revised and read as



**Figure TB210.F11 (Revised) Typical jockey pump arrangement for pumps operating under positive suction head**

Note: This is to avoid interruption to the jockey pump operation when the sprinkler pump is isolated for whatever reason.

📖 **TB210.11** is not mandatory and for reference only.

Note: In current practice, the testing and commissioning of Fire Service Installations and Equipment shall be carried out by registered FSI contractors according to relevant FSD requirements. This Clause shall be taken as reference for good practice.

✎ **The following new sub-clause “TB210.12.1” for TB210.12** should be added  
**“TB210.12.1 Intermediate Booster Pump**

In all buildings for installation(s) where the height between the topmost sprinkler heads and the lowest Sprinkler Inlet is in excess of 60m, the flow and pressure characteristics according to the Rules shall be maintained by intermediate booster pumps which may be either a dual purpose pump system or a separate one.

Provision shall be made for testing the intermediate booster pumps flow and pressure performance during future inspection and/or maintenance.

The tested pressure at nominal flow shall not be lower than the required pressure as stated in revised Table TB210.T5. For dual purpose pump, pressure reducing valve set shall be installed in duplicated and normally open position between pump suction pipe and sprinkler inlet. Positive running pressure at the downstream side of the PRV shall be maintained. Design and requirements such as the control, signal indications, start and stop as well as labeling shall be in accordance with the intermediate booster pump of FH/HR system

stipulated in the FSCoP.”

Note: To follow similar requirements on FH/HR system as stated in the FSCoP and enhance the maintenance quality of the intermediate booster pump.

### TB213: 2011: 1 Upkeep and testing of multiple controls

 **TB213** is not mandatory and for reference only.

Note: System certification shall follow FS (IE) Regulation and FSCoP.

### TB214: 2015: 1 Sprinkler protection of flammable liquid stores

 **TB214** is not mandatory and for reference only.

Note: This is to suit local practice.

### TB215: 2015: 1 Sprinkler protection of idle pallet storage

 **The following sentence for TB215.3.2** should be added at the end  
“FS Code or the “Special Requirements” specified in Table TB215.T1 and Table TB215.T2 should also be followed whichever is more stringent.”

Note: This is to meet the local requirement.

 **The second column for Pallet class “I” of Table 215.T2** should be revised and read as  
“As for category IV, ST4 storage, see TB234.4.24”

Note: BS EN Clause 12.5 is replaced by TB234.4.24.

 **TB215.4** is not mandatory and for reference only.

Note: Informative material is for reference.

### TB216: 2015: 1 Sprinkler protection of aerosols

 **The last sentence of TB216.1** is not mandatory and for reference only.

Note: FS Code should be followed.

**R** **The first sentence of TB216.4.1** is not mandatory and for reference only.

Note: FS Code should be followed.

**The last paragraph of TB216.5.2.3** should be revised and read as

“In-rack sprinkler protection shall otherwise comply with the requirements for category IV storage; see TB234.5.4.3, TB 234.5.5.3, TB 234.5.6.3.2, TB 234.5.7.1.2, TB234.4.24 and TB229.3.9.”

Note: BS EN Clause 7.2.3.3 is replaced by relevant clauses in TB234; BS EN Clause 12.5 is replaced by TB234.4.24; and BS EN Clause 13.4.4 is replaced by TB229.3.9.

**R** **TB216.5.3** is not mandatory and for reference only.

Note: Informative material is for reference.

**R** **TB216.6** is not mandatory and for reference only.

Note: This is to suit local practice.

### TB217: 2015: 1 Categorisation of goods in storage

**R** **TB217** is not mandatory and for reference only.

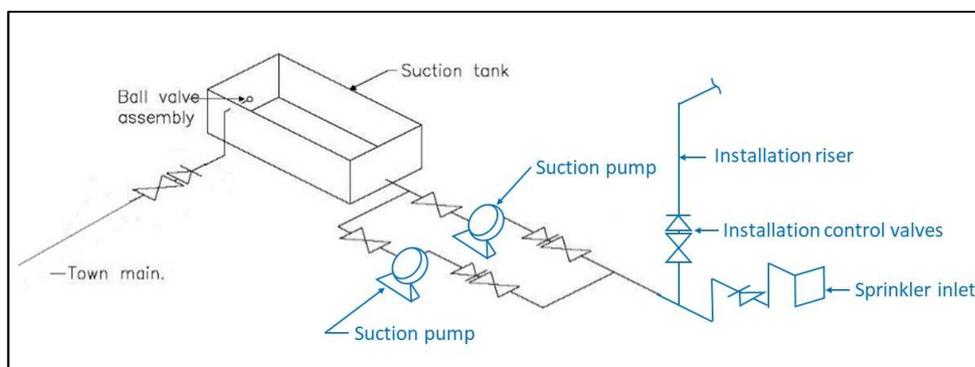
Note: This is to suit local practice.

### TB218: 2015: 1 Water supply diagrams

**NA** **Figure TB218.F1** is not to be applied locally.

Note: Direct connection to town main does not comply with clause 5.30 of FSCoP and is also subject to WSD’s approval.

**The** **Figure TB218.F2** should be revised and read as



**Figure TB218.F2 (Revised) Superior single water supply using suction pump**

Note: To suit local practice, some descriptions of the diagram were revised as below:

- Deletion of the connection for non-sprinkler installation and add Fire Service inlet connection before the installation

control valve.

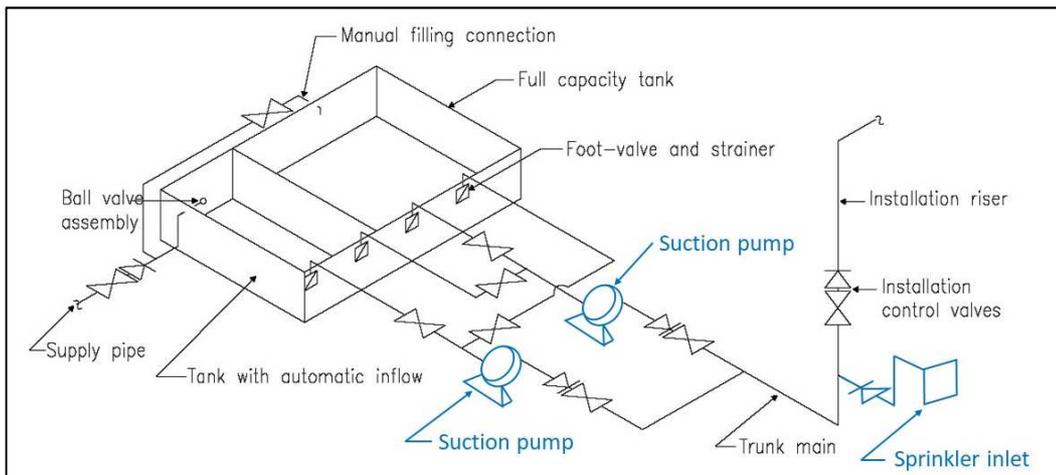
- Change description for diesel and electric pump as suction pump.

**R** **Figure TB218.F3, Figure TB218.F4 and Figure TB218.F5 are not mandatory and for reference only.**

Note: Individual approval is required. Modifications are also required, which include: -

- removing the connection for non-sprinkler installation;
- adding sprinkler inlet connection before the installation control valve; and
- changing the description for diesel and electric pump as suction pump.

**R** **Figure TB218.F6 should be revised and read as**



**Figure TB218.F6 (Revised) Duplicate supplies using two suction pumps from a limited capacity tank and full capacity tank**

Note: To suit local practice, some descriptions of the diagram were revised as below:

- Delete the connection for non-sprinkler installation and add Fire Service inlet connection before the installation control valve.
- Change description for diesel and electric pump as suction pump.

## **TB221: 2015: 1 Sprinkler protection of schools**

**R** **TB221 is not mandatory and for reference only.**

Note: This is to suit local practice. However, monitoring the status of stop valves, etc., in clause TB221.12 is a good practice. Considering the exception of sprinkler in voids in clause TB221.3.2 (c) is a good practice.

## **TB222: 2015: 1 Ordinary hazard group 3 protection using enhanced protection extended coverage sprinklers**

**NA** **TB 222.8.3 is not to be applied locally.**

Note: This is to meet local requirement.

**NA** **Item (3) of TB222.8.5** is not to be applied locally.

Note: This clause should tally with the revised Clause 9.3.4.

**NA** **The last sentence of item (4) of TB222.10** is not to be applied locally.

Note: Drawing of water from a town main by booster pumps is not acceptable by WSD.

### **TB224: 2009: 2 Sprinkler water storage tanks (cisterns)**

**NA** **The last sentence of TB224.2** is not to be applied locally.

Note: This is to suit local practice.

 **TB224.3.2** should be revised and read as

“A suction or gravity tank, with a listed volumetric range, complete with all necessary fittings complying with the requirements of WSD.”

Note: This is to suit local practice.

 **TB224.4.2** should be revised and read as

“A concrete tank of appropriate capacity, designed and constructed in accordance with the requirements of BD and WSD.”

Note: This is to suit local practice.

### **TB226: 2009: 1 Design, installation and maintenance of underground pump chambers**

**NA** **TB226** is not to be applied locally.

Note: Underground pump chamber is not permitted.

### **TB227: 2015: 1 Pipework**

**R** **TB227.1** is not mandatory and for reference only.

Note: This is to suit local practice.

**R** **TB227.2.1 and Table TB227.T1** are not mandatory and for reference only.

Note: This is to suit local practice.

 **TB227.2.1.1** is not mandatory and for reference only.

Note: Requirement for protecting metallic pipes is already covered by clause 17.1.6.

 **The 7<sup>th</sup> column -Value of k for DN100 Galvanized medium pipe of TB227.T2**

[“ $1.24 \times 10^{-9}$ ”] should be revised and read as

“ $1.24 \times 10^{-8}$ ”

Note: This is to correct typo.

 **TB227.2.3** should be revised and read as

“**Only mechanical pipe couplings complying with the requirements of WSD shall be used.**”

Note: This is to meet local requirement.

 **TB227.2.4 to TB227.2.7** are not mandatory and for reference only.

Note: This is to suit local practice.

**TB229: 2015: 1 LPC Rules for automatic sprinkler installations - variations to BS EN 12845: 2015**

 **TB229.3.6** is not to be applied locally.

Note: It is replaced by revised Table 11 at Clause 9.3.4.

 **TB229.3.12** is not to be applied locally.

Note: This is to suit local practice.

 **The following new “occupancy” for Table TB229.T7** should be added

Occupancy	OH1
Miscellaneous	Hospitals Hotels Libraries (excluding book Stores) Restaurants School see 6.2.1 Offices see 6.2.1 “ <b>Hostel</b> ”

Note: This is to provide clear clarification on the sprinkler protection category for hostel.

- ✎ **The following new “occupancy” for Table TB229.T7 should be added**

Occupancy	OH3
Shops and Offices	Department stores Shopping Centre “Retail shops”

Note: This is to clarify the sprinkler protection category for retail shops.

- ✎ **TB 229.3.14** should be revised and read as

“Description of change:

Supplements BS EN Annex D with additional requirements for planning in relation to Sprinkler installation Zoning

Where an installation incorporates zones, no zone shall cover more than one floor level, which may however include a mezzanine floor of no greater than 100 m<sup>2</sup> and staircase enclosure(s).”

Note: This is to meet local requirement and staircase enclosure can be considered as one zone.

- ✎ **The second paragraph of TB 229.3.15** should be revised and read as

“Flushing connections, with permanently installed valves, shall be fitted on the spur ends of the installation distribution pipes. At least one such flushing connection shall be provided for each zone. Each Valve outlet shall be fitted with a plug cap.”

Note: This is to suit local practice.

### TB230: 2009: 1 Protection of roof spaces, floor and ceiling voids

- ☐ **TB230** is not to be applied locally.

Note: FSCoP should be followed.

### TB231: 2009: 1 Pipe Sizing

- ✎ **The following new paragraph for TB231.2.1** should be added at the end

“Orifice plate

If orifice plates, brass or stainless steel, are to be used for balancing an installation or accommodating pump characteristics, their design and installation requirements shall comply with Clause 24.1.3 and Appendix B of BS 5306: Part 2 or other standards accepted by FSD.”

Note: This is to meet local requirement.

**NA** TB231.2.2 is not to be applied locally.

Note: This is to suit local practice.

### TB232: 2015: 1 Sprinkler installation control valve sets

 **The first sentence of first paragraph of TB232.3.2** should be revised and read as  
“Each control valve set shall be connected to a water motor alarm complying with BS EN 12259-4 or other appropriate standards accepted by FSD and an electrical device for remote alarm indication, both located as close as possible to the alarm valve.”

Note: Water motor alarm of non-European control valve set would comply with standard other than BS EN 12259-4.

 **The third sentence of first paragraph of TB232.3.2** [“A single alarm motor ... it is operating.”] should be revised and read as  
“A single alarm motor and gong may be common to a group of wet alarm valves providing that they are in the same valve room. All local visual indicators shall be fitted at the alarm gongs to indicate which alarm valve(s) is/are operating.”

Note: This is to suit local practice.

 **TB232.3.3** should be revised and read as  
“Tamper-proof devices shall be fitted to monitor the status of control valve set stop valves, capable of interrupting or controlling the flow of water to sprinkler. The monitoring devices shall be electrically connected to a control and indicating panel complying with BS EN Clause D.3.7.”

Note: This is to suit local practice.

**NA** **The second paragraph of “Commentary and recommendations on TB232.3.3”** [“The necessity for monitoring control valves ... specified in TB205.”] is not to be applied locally.

Note: Control valves shall be monitored.

 **The first paragraph of TB232.5.3** should be revised and read as  
“The installation control valve shall be in a location readily accessible to the fire and rescue service responding to a fire alarm, preferably at the access level to the property and in accordance with the approved building plans.”

Note: This is to suit local practice.

 **TB232.6** should be revised and read as  
“Tail end dry pipe valves and pre-action valves may be installed without a duplication.”

Note: This is to suit local practice.

## TB233: 2015: 1 Water supplies for systems intended to comply with Approved Document B (ADB)

**NA** TB 233 is not to be applied locally.

Note: ADB is not applicable locally.

## TB234: 2015: 1 Protection of high hazard storage (HHS) configurations

**NA** The third paragraph of TB234.3 [*“Bulkhead – a solid and ... Euroclass A1 or A2 of BE EN 13501 Part 1.”*] is not to be applied locally.

Note: Fire resisting construction should follow FS Code

**NA** The second bullet point of the fifth paragraph of TB234.4.2 [*“a non-combustible false ceiling ... a 50N/m<sup>2</sup> updraft.”*] is not to be applied locally.

Note: Fire resisting construction should follow FS Code.

**R** The fourth bullet point of the fifth paragraph of TB234.4.2 [*“The solution proposed in ...TB234.4.2.”*] is not mandatory and for reference only.

Note: The application shall be subject FSD approval.

**R** Commentary and Recommendations on TB234.4.2 is not mandatory and for reference only.

Note: The application shall be subject FSD approval.

**✎** The second paragraph of TB234.4.4 should be revised and read as  
“Intermediate level in-rack sprinklers shall always be installed in the wet mode, except the sprinkler installation below 4°C.”

Note: This is to suit local practice.

**✎** The title of the “Commentary and Recommendations on TB234.4.8” should be revised and read as

“Commentary and Recommendations on TB234.4.9”

Note: This is to correct a typo.

 **The second paragraph of “Commentary and Recommendation on TB234.4.9”** should be revised and read as

“FSD shall be consulted upon the acceptability of the proposed design solution on a case-by-case basis.”

Note: This is to suit local practice.

**(NA) The third bullet points of the second paragraph of TB234.4.15** [*“there shall be  $\geq 2.4m$  ... fire-rated walls.”*] is not to be applied locally.

Note: Fire resisting construction should follow FS code.

**(NA) TB234.4.16** is not to be applied locally.

Note: This is to suit local practice.

**(NA) TB234.4.18** is not to be applied locally.

Note: FS Code and FSCoP should be followed.

**(NA) TB234.4.19** is not to be applied locally.

Note: FSCoP should be followed.

**(NA) TB234.4.26** is not to be applied locally.

Note: Pre-calculated method for HHP and HHS systems without in-rack sprinkler is accepted.

 **The last sentence of the second paragraph of TB234.5.3.3.3** [*“This highest flow value discharging for a period of 90 minutes ... tank or source.”*] should be revised and read as  
“This highest flow value discharging for a period of 90 minutes or 60 minutes plus direct connection to Service Provider’s Computerized Fire Alarm Transmission System shall determine the effective capacity of the water storage tank or source.”

Note: This is to suit local practice.

 **The last sentence of the second paragraph of TB234.5.4.3.3** [*“This highest flow value discharging for a period of 90 minutes ... tank or source.”*] should be revised and read as  
“This highest flow value discharging for a period of 90 minutes or 60 minutes plus direct connection to Service Provider’s Computerized Fire Alarm Transmission System shall determine the effective capacity of the water storage tank or source.”

Note: This is to suit local practice.

✎ **The last sentence of the third paragraph of TB234.5.5.3.3** [*“This highest flow value discharging for a period of 90 minutes ... tank or source.”*] should be revised and read as *“This highest flow value discharging for a period of 90 minutes or 60 minutes plus direct connection to Service Provider’s Computerized Fire Alarm Transmission System shall determine the effective capacity of the water storage tank or source.”*

Note: This is to suit local practice.

✎ **The fifth paragraph of TB234.5.6.1** [*“where the requirements ... case-by-case basis.”*] should be revised and read as *“Where the requirement of TB234.5.6.2 or TB234.5.6.3. cannot be achieved, FSD shall be consulted upon the acceptability of the proposed design solution on a case-by-case basis.”*

Note: This is to suit local practice.

✎ **The “Note” to TB234.5.6.2.1** should be revised and read as *“Note: Open top bin-box storage arrangements are considered a special case and not covered by this document. In such cases, FSD shall be consulted upon the acceptability of the proposed design solution on a case-by-case basis.”*

Note: This is to suit local practice.

✎ **The second paragraph of “Commentary and Recommendations on TB234.5.6.3.1”** should be revised and read as *“If transverse flues cannot be implemented, FSD shall be consulted upon the acceptability of the proposed design solution on a case-by-case basis.”*

Note: This is to suit local practice.

☐ **The last sentence of “Commentary and Recommendations on TB234.5.6.3.1”** [*“Vertical bulkheads (BS EN 13501 Part 1 Euroclass A1 or A2) ...”*] is not to be applied locally.

Note: This is to meet local requirement.

✎ **The last sentence of the third paragraph of TB234.5.6.3.2.3** [*“This highest flow value discharging for a period of 90 minutes... tank or source.”*] should be revised and read as *“This highest flow value discharging for a period of 90 minutes or 60 minutes plus direct connection to Service Provider’s Computerized Fire Alarm Transmission System shall determine the effective capacity of the water storage tank or source.”*

Note: This is to suit local practice.

**NA** The first bullet point of the first paragraph of TB234.5.7.1.1 [“continuous full height ...”] is not to be applied locally.

Note: This is to meet local requirement.

**R** The last sentence of the third paragraph of TB234.5.7.1.2.3 [“*This highest flow value discharging for a period of 90 minutes... tank or source.*”] should be revised and read as “This highest flow value discharging for a period of 90 minutes or 60 minutes plus direct connection to Service Provider’s Computerized Fire Alarm Transmission System shall determine the effective capacity of the water storage tank or source.”

Note: This is to suit local practice.

**R** The last sentence of TB234.5.7.2.2 should be revised and read as “FSD shall be consulted upon the acceptability of the proposed design solution on a case-by-case basis.”

Note: This is to suit local practice.

### TB235: 2015: 1 Control mode specific application sprinklers: CMSA

**R** TB235 is not mandatory and for reference only.

Note: Informative material is for reference.

### TB236: 2014: 1 Confirmed fire signals from sprinkler installations

**R** TB236 is not mandatory and for reference only.

Note: This is to suit local practice.

### Part 3: Supplementary information

**R** Part 3 is not mandatory and for reference only.

Note: Information and guidelines are from other organizations.

End