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7 February 2012

To: Recipients of FSD Circular Letters

Dear Sirs/Madams,

FSD Circular Letter No. 2/2012
Part I: Visual Fire Alarm Systems as Required under the
Design Manual: Barrier Free Access 2008
Part II: Checklist for Fire Detection and Fire Alarm System
to BS 5839-1:2002+A2:2008

This Circular Letter announces the revised extent of visual fire alarm system as well as the adoption of the inspection checklist for fire detection and fire alarm system to BS 5839-1:2002+A2:2008, details of which are set out in Parts I and II respectively.

Following the implementation of the *Design Manual: Barrier Free Access 2008* and the issue of FSD Circular Letters Nos. 10/97, 5/99 and 4/2001, we have received enquiries from time to time seeking clarification on the exact areas of buildings that should be covered by the visual fire alarm system. Part I of this Circular Letter announces the extent of the system as required under the Manual. The revised extent will take effect from 1 April 2012 for all initial building plan submissions to this Department, the Buildings Department or the Housing Department.

Subsequent to the adoption, with modifications, of BS 5839-1:2002+A2:2008 as the rules for fire detection and fire alarm systems for buildings in FSD Circular Letter No. 1/2009, the Fire Safety Standard Advisory Group agreed to standardize the procedures and method for testing the systems. The checklist at Part II of this Circular Letter will be adopted for general use with immediate effect.

Yours faithfully,

(NG Kuen-chi)
for Director of Fire Services

Encl.

PART I
Visual Fire Alarm Systems as Required under the
Design Manual: Barrier Free Access 2008

As stipulated in paragraph 5.2.3(a) of the Manual, *“visual alarm signal shall be provided to form part of the fire alarm system..... in the categories of buildings [or parts of buildings] as specified in Table 2 in Chapter 2”*. In accordance with paragraph 1.3 of the Manual, *“the Manual applies to the design and construction of new buildings or alteration and additions to existing buildings”*. Please note that this Department has considered it appropriate to apply such requirement only to new buildings and alteration or addition works to existing buildings involving more than 50% by volume or change in use.

The installation of visual fire alarm systems shall conform to the Code of Practice for Minimum Fire Service Installations and Equipment and either one of the following : –

- (i) Section 18.5 of NFPA 72:2010 with red flashing lights; or
- (ii) Clause 17 of BS 5839-1:2002+A2:2008 with red flashing lights. For avoidance of doubt, List-Item 2.40 of FSD Circular Letter No. 1/2009 is hereby deleted.

The criteria to be satisfied during acceptance test of visual fire alarm systems are detailed below:–

- (i) All visual fire alarms shall be labelled “FIRE ALARM” (火警) with height of English and Chinese characters not less than 10 mm and 15 mm respectively; and
- (ii) In addition to DC supply and back-up power from battery, all visual fire alarm systems may alternatively be powered by AC supply with secondary supply from emergency generators or electricity obtained before the main switch.

Building plans shall only indicate the areas to be covered, but not the detailed positions of the visual fire alarms, which instead should be included in the FSI drawings submitted to this Department together with Form FSI/314 or FSI/314A.

Exemptions to the visual fire alarm requirement are clearly listed in paragraphs 2.2 and 5.2.3(b) of the Manual. The table at Annex to Part I shows for general reference common areas required/not required to be covered by visual fire alarm signals. For enquiries and clarification, please contact our New Projects Division at 2733 7854.

Annex to Part I of FSD Circular Letter No. 2/2012

Extent of Application of Visual Alarm Signals

Type of Building/ Nature of Occupancy	Requirement
Club house, whether ancillary to domestic development, serviced apartment and student hostel or not	Yes
Carpark, whether ancillary to domestic development, serviced apartment and student hostel or not	Yes
Hotel, guesthouse and hostel	For non-guestroom areas: Yes For guestroom areas: Required for the accessible guestrooms stipulated under paragraph 7(2) of the Manual, and the access thereof
Exempted areas listed in paragraph 2.2 of the Manual	No
Exempted areas listed in paragraph 5.2.3(b) of the Manual	No
All other types/natures	As required by Table 2 in Chapter 2 of the Manual

PART II
Checklist for Fire Detection and Fire Alarm System
to BS 5839-1:2002+A2:2008

In the past meetings of the Fire Safety Standard Advisory Group (FSSAG), representatives of the trade agreed to standardize the procedures and method for testing the fire detection and fire alarm systems installed in accordance with BS 5839-1:2002+A2:2008 with a view to enhancing the efficiency of the compliance inspection. In this connection, a checklist at Annex to Part II for compliance inspection of the systems is devised and endorsed by the FSSAG for formal use. The FSSAG firmly believed that the checklist would facilitate the trade in the compliance inspection.

This part of the Circular Letter should be read in conjunction with the acceptance criteria of the testing requirements of fire detection and fire alarm systems specified in Part II of the *Code of Practice for Inspection, Testing and Maintenance of Installations and Equipment*. For enquiries and clarification, please contact our Fire Service Installations Division at 2733 7563 or 2733 7549.

Annex to Part II of FSD Circular Letter No. 2/2012

Checklist for Fire Detection and Fire Alarm System to BS 5839-1:2002+A2:2008

I. Reference

Project: FSD Ref.:
Address:
Type of Building:
Domestic/Industrial/Institutional/Godown/Commercial/Office/Composite/Hotel/Hospital/Others
..... and with/without basement.

II. Type of Equipment

2.1 Alarm Annunciation Panel

2.1.1 Manufacturer/Model No.: (Main panel)
(Sub-panel/repeater panel, if any)

2.1.2 Type: Conventional type []
Addressable type []

2.2 Detectors

2.2.1 Heat detector Manufacturer/Model No.:
Type: Fixed temperature []
Rate-of-rise temperature []
Combination []
Linear cable []
Others

2.2.2 Smoke detector Manufacturer/Model No.:
Type: Ionization []
Optical []
Beam []
Aspirating []
Others

2.2.3 Flame detector Manufacturer/Model No.:
Type: Infrared []
Ultra-violet []
Combination []
Others

2.2.4 Others Manufacturer/Model No.:
Type:

2.3 Manual Call Points

Manufacturer/Model No.:

Type: Breakglass type []
 Others

2.4 Alarm Sounders

Manufacturer/Model No.:

Type: Bell []
 Yodalarm []
 Horn []
 Siren []
 Electronic sounder []
 Others

2.5 Visual Fire Alarm Units

Manufacturer/Model No.:

2.6 Smoke Detector with Sounder Base

Manufacturer/Model No.:

2.7 Power Supplies

Mains supply: Supply voltage/Phase/Hz:

Secondary supply: Type: Emergency generator []
 Feed before main switch []
 Secondary (rechargeable) battery []
 Rating: Voltage Amp-hour
 Others

2.8 Fire Resisting Cables

Manufacturer/Model No.:

	Yes	No	N/A	Remarks	Reference	
					BS	CL

III. Visual Inspection

3.1 General

3.1.1	The initial building plans submission is received by FSD on or after 1 September 2009.	[]	[]	[]	1/2009
3.1.2	All individual components of the fire alarm system including detectors and the control panel are mutually compatible.	[]	[]	[]	

		Yes	No	N/A	Remarks	Reference	
						BS	CL
3.1.3	An as-fitted zoning schedule is provided adjacent to the alarm annunciation panel.	[ ]	[ ]	[ ]	.....	
3.1.4	A log book is provided adjacent to the alarm annunciation panel.	[ ]	[ ]	[ ]	.....	
3.1.5	The building plans submission for extensions and additions involving major alterations and additions to the building is in excess of 50% by volume and is received by FSD on 1 September 2009 or later.	[ ]	[ ]	[ ]	.....		1/2009
3.2	<u>Detector</u>						
3.2.1	The detection zonings are properly labelled at the alarm annunciation panel.	[ ]	[ ]	[ ]	.....	13.2.4a)	
3.2.2	Detectors are provided in areas as indicated on approved building plans.	[ ]	[ ]	[ ]	.....	
	Point type heat detector:						
	Linear heat cable:						
	Point type smoke detector:						
	Beam smoke detector:						
	Aspirating smoke detector:						
	Flame detector:						
	Others:						

	Yes	No	N/A	Remarks	Reference	
					BS	CL
3.2.3 On the floor(s) where sleeping risk exists (e.g. hotel, hospital, hostel, etc.):						2/2009
(a) heat detector is used in kitchen and E/M plant room.	[]	[]	[]		
(b) smoke detector is used in other areas except toilet, bathroom and staircase where sprinkler is provided.	[]	[]	[]		
(c) sounder base is provided for smoke detector in guestrooms of hotels / guesthouses / bedrooms of student hostels except detector inside concealed space.	[]	[]	[]		
3.2.4 Detectors are provided to basement according to the approved building plan.	[]	[]	[]		
3.2.5 Intrinsically safe or flameproof device is used within potentially hazardous areas.	[]	[]	[]		
3.2.6 External indicator is provided outside the doors of rooms where travel distance of the detectors inside the rooms exceeds 30 m of reach within a zone.	[]	[]	[]	13.2.3b)	1/2009
3.2.7 Remote indicating lamps are provided for ceiling void or floor void detectors, if addressable text display in conjunction with layout plans are not provided adjacent to the control and indicating equipment.	[]	[]	[]	13.2.4b) 13.2.5	1/2009
3.2.8 Detectors are provided for horizontal ceiling void ≥ 800 mm high.	[]	[]	[]	22.2d)	1/2009

	Yes	No	N/A	Remarks	Reference	
					BS	CL
3.2.9 Clearance below detector is ≥ 500 mm. (Not applicable for ceiling voids, floor voids, and area having no horizontal dimension greater than 1 m.)	[]	[]	[]	22.3n)	
3.2.10 Point smoke detector is installed within ceiling height limit (general) of 10.5 m. (Note: $\leq 10\%$ of ceiling height may exceed this limit and ≤ 12.5 m).	[]	[]	[]	22.9 Table 3	1/2009
3.2.11 Heat detector is installed within ceiling height limit (general) of 9 m for Class A1 to BS EN 54-5 and 7.5 m for other Classes to BS EN 54-5. (Note: $\leq 10\%$ of ceiling height may exceed this limit and ≤ 10.5 m).	[]	[]	[]	22.9 Table 3	1/2009
3.2.12 Under flat ceiling, horizontal distance between any point and the nearest heat detector is ≤ 5.3 m.	[]	[]	[]	22.3a)2)	
3.2.13 Under flat ceiling, horizontal distance between any point and the nearest smoke detector is ≤ 7.5 m.	[]	[]	[]	22.3a)	
3.2.14 In corridors ≤ 2 m wide, heat detectors are sited at intervals of ≤ 10.6 m and ≤ 5.3 m from end wall.	[]	[]	[]	22.3a), Note 1	
3.2.15 In corridors ≤ 2 m wide, smoke detectors are sited at intervals of ≤ 15 m and ≤ 7.5 m from end wall.	[]	[]	[]	22.3a), Note 1	

	Yes	No	N/A	Remarks	Reference	
					BS	CL
3.2.16 In detector installation, ceiling obstructions > 10% overall ceiling height are treated as wall. (Note: Within horizontal voids, obstructions > 10% of the height between structural floor and structural ceiling are treated as wall regardless of the void location.)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	22.3j), Note 8	1/2009
3.2.17 In detector installation, partitions or storage racks reaching within 300 mm of the ceiling are treated as wall.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	22.3i)	
3.2.18 Detectors are mounted \geq 1 m from any air inlet of forced ventilation system.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	22.3m)	
3.2.19 Horizontal ceiling comprises:					22.3k)	
(a) a series of small cells (honeycomb ceiling), detector spacing is in accordance with Figure 10b) & Table 1 of BS 5839-1;	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
(b) a number of closely spaced structural beams, detector spacing is in accordance with Figure 10c) & Table 2 of BS 5839-1.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
3.2.20 Detector(s) is provided under intermediate horizontal surfaces such as ducts, loading platforms and storage racks in excess of 3.5 m in width and whose undersurface is in excess of 800 mm above the floor (other than when the side of the duct or structure is in excess of 800 mm from the wall or other ducts or structure).	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	22.3o)	

	Yes	No	N/A	Remarks	Reference	
					BS	CL
3.2.21 Other than point type smoke and heat detectors, the following detectors are according to manufacturer's standard and specification.						
(a) Aspirating smoke detectors	[]	[]	[]		
(b) Flame detectors	[]	[]	[]		
(c) Video smoke detectors	[]	[]	[]		
(d) Beam detectors	[]	[]	[]		
(e) Others, please specify:	[]	[]	[]		

3.3 Alarm Sounder

3.3.1 Provided in areas as indicated on FSI layout plans.						
Alarm sounder: nos.	[ ]	[ ]	[ ]	.....	
3.3.2 External fire alarm sounder is provided at the building entrance or the "Fire Service Access Point" and control and indicating equipment.					16.2.1f)	1/2009
The sounder is clearly marked with the words "FIRE ALARM" (火警).	[ ]	[ ]	[ ]	.....	
3.3.3 One alarm sounder is provided at each hose reel point.	[ ]	[ ]	[ ]	.....	Code	
3.3.4 Each system incorporates at least two sounders and each fire compartment is provided with at least one sounder. (Note: Meaning of fire compartment is as defined in paragraph 5 of the FRC Code.)	[ ]	[ ]	[ ]	.....	16.2.1f)	1/2009

3.4 Manual Call Point (MCP)

3.4.1 Provided in areas as indicated on FSI layout plans.						
MCP: nos.	[ ]	[ ]	[ ]	.....	

	Yes	No	N/A	Remarks	Reference	
					BS	CL
3.4.2 The zoning is at least one zone per floor.	[]	[]	[]	13.2.2	1/2009
3.4.3 One MCP is located:					20.2c)	1/2009
(a) at hose reel point;	[]	[]	[]		
(b) adjacent to & within 2m from storey exit (or its entrance lobby if it leads only to the storey exit);	[]	[]	[]		
(c) adjacent to staircase final exit to open air on G/F or place of ultimate safety.	[]	[]	[]		
3.4.4 For exit opening ≥ 12 m in width, two MCPs are provided within 2 m from each end of the opening before exit (or before the entrance lobby if such lobby leads only to the exit).	[]	[]	[]	20.2c)	1/2009
3.4.5 MCP is fixed at a height of 0.9 to 1.2 m above finished floor level.	[]	[]	[]	20.2h)	1/2009
3.4.6 MCPs are surface mounted or semi-recessed mounted as per manufacturer's design.	[]	[]	[]	20.2i)	1/2009
3.5 Visual Fire Alarm (VFA)						
3.5.1 VFA is labelled "FIRE ALARM" (火警) with height of English and Chinese wordings ≥ 10 mm and 15 mm respectively.	[]	[]	[]	Code	
3.5.2 Alarm signal is in form of flashing red light.	[]	[]	[]	Code	
3.5.3 Flashing light of VFA is visible to normal eyesight in all areas required to be protected.	[]	[]	[]	Code	
3.5.4 One VFA point is provided for each compartment and the distance between two VFA points ≤ 60 m.	[]	[]	[]	Code	

		Yes	No	N/A	Remarks	Reference	
						BS	CL
3.5.5	Areas covered by VFA are in compliance with approved building plans and Design Manual: Barrier Free Access.	[ ]	[ ]	[ ]	.....	Code	
3.5.6	Design of VFA system conforms to Code of Practice and					Code	
	(a) NFPA 72: 2010 or	[ ]	[ ]	[ ]	.....	CL	
	(b) BS 5839-1;2002+A2: 2008	[ ]	[ ]	[ ]	.....	
3.5.7	One VFA point is located near every hose reel.	[ ]	[ ]	[ ]	.....	
3.5.8	The power supply of the VFA system is from:						
	(a) DC supply source with back-up supply by battery; or	[ ]	[ ]	[ ]	.....	
	(b) AC supply source with secondary supply from emergency generator; or	[ ]	[ ]	[ ]	.....	
	(c) AC supply source with secondary supply from the main electricity supply obtained before main supply switch.	[ ]	[ ]	[ ]	.....	

3.6	<u>Cables, Wiring and Other Interconnections</u>	Yes	No	N/A	Remarks	Reference	
						BS	CL

3.6.1 Cables used for:

- (a) Critical signal path (panel to all field devices);
- (b) extra low voltage supply from external power supply (charger / battery) to the system;
- (c) final circuit providing low voltage mains supply to the system; and
- (d) low voltage mains supply to the system (mains supply to panel / charger)

comply with:

- (i) MICS cable conforming to BS EN 60702-1 & 60702-2; or
- (ii) Cable conforming to BS 7629; or
- (iii) Cable conforming to BS 7846; or
- (iv) Cable rated at 300/500 V (or greater) that provide same degree of safety to BS 7629; or
- (v) Fire resisting cables to other international standard accepted by FSD; or
- (vi) Cables as per Remarks Section in Appendix 6 of FS CoP and accepted being exempted from requirement of fire resistance;

26.2b)	1/2009
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	Yes	No	N/A	Remarks	Reference	
					BS	CL
Except for item (vi), item (i) to (v) shall also comply with:						
(vii) "Standard" fire resisting cables with PH30 classification according to BS EN 50200 and additional 30 min. survival time to Annex E of this standard; or	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	26.2d)	1/2009
(viii) "Enhanced" fire resisting cables with PH120 classification according to BS 8434-2.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	26.2e)	1/2009

	Yes	No	N/A	Remarks	Reference	
					BS	CL
3.6.2 Cables used for power supply to sounders, visual fire alarms, fire alarm devices, control modules, signalling devices, etc. comply with:					26.2b)	1/2009
(i) MICS cable conforming to BS EN 60702-1 & 60702-2; or	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
(ii) Cable conforming to BS 7629; or	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
(iii) Cable conforming to BS 7846; or	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
(iv) Cable rated at 300/500 V (or greater) that provide same degree of safety to BS 7629; or	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
(v) Fire resisting cables to other international standard accepted by FSD; or	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
(vi) Cable conforming to BS 6387 AWX or CWZ; or	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
(vii) Cables as per Remarks Section in Appendix 6 of FS CoP and accepted being exempted from requirement of fire resistance;	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
Except for item (vii), item (i) to (vi) shall also comply with:						
(viii) "Standard" fire resisting cables with PH30 classification according BS EN 50200 and additional 30 min. survival time to Annex E of this standard; or	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	26.2d)	1/2009
(ix) "Enhanced" fire resisting cables with PH120 classification according to BS 8434-2.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	26.2e)	1/2009
3.6.3 Conductors are having a cross-sectional area of $\geq 1 \text{ mm}^2$.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	26.2j)	

	Yes	No	N/A	Remarks	Reference	
					BS	CL
3.6.4 Cables and conductors are separated from cables of other services.	[]	[]	[]	26.2k)	
3.6.5 Cables carrying power in excess of extra-low voltage are segregated from extra-low voltage fire alarm circuits.	[]	[]	[]	26.2l)	
3.6.6 Colour of cables is limited to \leq two sets of common colours and one of the colours is red.	[]	[]	[]	26.2m)	
					26.2n)	
					26.2o)	
3.7 <u>Control and Indicating Equipment</u>						
3.7.1 The alarm annunciation panel is located near entrance or in fire control centre.	[]	[]	[]		
3.7.2 Manual call point indications are given at the control and indicating panel even if addressable text information is available.	[]	[]	[]		
3.7.3 Manual call point and detection zone indications are given at the control and indicating panel even if addressable text information is available, by one or a combination of the following:					23.2.2c) (to e)	
(a) LED indicators	[]	[]	[]		
(b) Visual display units	[]	[]	[]		
(c) Computer graphics	[]	[]	[]		
(d) Other suitable means (please specify)	[]	[]	[]		
3.7.4 The wirings are compatible with the type of control panel as recommended by the panel manufacturer. (2-wire system/4-wire system/twisted pair/.....)	[]	[]	[]		

		Yes	No	N/A	Remarks	Reference	
						BS	CL
3.7.5	Operation of alarm silent facility should:					16.2.1g)	
	(a) require manual operation;	[ ]	[ ]	[ ]	.....	
	(b) not cancel any visual signal;	[ ]	[ ]	[ ]	.....	
	(c) if a new zone goes into alarm, sound any fire alarm sounders belonging to that alarm zone;	[ ]	[ ]	[ ]	.....	
	(d) not prevent correct operation of any control;	[ ]	[ ]	[ ]	.....	
	(e) not prevent transmission of alarm to alarm receiving centre.	[ ]	[ ]	[ ]	.....	
3.8	<u>Power Supplies</u>						
3.8.1	Connections to the mains supply is via an independent isolating protective device.					25.2a)	
		[]	[]	[]		

	Yes	No	N/A	Remarks	Reference	
					BS	CL
3.8.2 Every isolator, switch and protective device is situated in a position inaccessible to unauthorized persons or protected against unauthorized operation and is properly labelled as appropriate:					25.2f) 25.2g)	1/2009
(a) "FIRE ALARM" (火警警報); or						
(b) "FIRE ALARM. DO NOT SWITCH OFF" (火警警報, 切勿切斷電源); or						
(c) "WARNING. THIS SWITCH ALSO CONTROLS THE SUPPLY TO THE FIRE ALARM SYSTEM" (警告, 此電掣同時控制火警警報系統電源).						
All labels are engraved in white letter/character with a red background. The words "FIRE ALARM" (火警) with height of English and Chinese wordings ≥ 10 mm and 15 mm respectively.	[]	[]	[]		
3.8.3 Circuit supplying fire alarm system is not protected by a residual current device. (unless necessary to comply with CoP for the Electricity (Wiring) Regulations)	[]	[]	[]	25.2h)	
3.8.4 The mains power supply and the standby battery are each capable of supplying the maximum alarm load of the system.	[]	[]	[]	25.2i) 25.3d)	
3.8.5 Battery power supply is provided. (Voltage: DC Volts: Ahr:)	[]	[]	[]		

	Yes	No	N/A	Remarks	Reference	
					BS	CL
3.8.6 Secondary (rechargeable) battery supplies should:					25.4	
(a) be with an automatic charger;	[]	[]	[]		
(b) have a life of at least 4 years;	[]	[]	[]		
(c) have date of installation labelled;	[]	[]	[]		
(d) have battery charger capable of recharging the battery from fully discharged to fully charged within 24 hours; and	[]	[]	[]		
(e) have capacity sufficient to maintain the system operation.	[]	[]	[]		

IV. Testing

4.1 Detectors

4.1.1 Upon actuation of any detector in the building, the correct audio/visual warning device is initiated.	[ ]	[ ]	[ ]	.....	
4.1.2 The sensitivity of all heat/smoke/flame detectors are correctly set in full accordance with the manufacturer's recommendations.	[ ]	[ ]	[ ]	.....	
4.1.3 The zoning of detectors is correct.	[ ]	[ ]	[ ]	.....	

4.2 Manual Call Point, Alarm Sounder and Visual Fire Alarm Installations

4.2.1 Upon actuation of the detector, alarm is given by alarm sounder installed at the building entrance near the alarm annunciation panel.	[ ]	[ ]	[ ]	.....	
4.2.2 Background noise (N) likely to persist for a period longer than 30 seconds.	[]	[]	[]	at.....dB(A).....	16.2.1 a)1)	

	Yes	No	N/A	Remarks	Reference	
					BS	CL
4.2.3 For domestic building, the minimum sound level of alarm sounders is measured at 3 m from the inside of the main entrance door with all doors shut off & all windows open at all flats and the result is dB(A), which is: (a) ≥ 60 dB(A); and (b) ≥ 5 dB(A) + (background noise, N) =dB(A).	[]	[]	[]	16.2.1 a)1)	
4.2.4 For non-domestic building, the minimum sound level of alarm sounders is measured at 3 m from the inside of the main entrance door with all doors shut off & all windows open at all flats and the result is dB(A), which is: (a) ≥ 65 dB(A); and (b) ≥ 5 dB(A) + (background noise, N) =dB(A).	[]	[]	[]	16.2.1 a)1)	
4.2.5 The sound level measured right below the sounder base(s) of smoke detector and 1 m above floor level with all the guestroom/bedroom windows fully opened and doors closed is ≥ 65 dB(A) or > 5 dB(A) above background noise.	[]	[]	[]		1/2009 2/2009
4.2.6 The zoning of manual call points is correct.	[]	[]	[]	12.2.2j), Note 5	1/2009
4.2.7 Upon actuation of any manual call point in the building, the fixed fire pump serving the corresponding block comes into operation regardless of the zoning of the manual call point.	[]	[]	[]	Code	

		Yes	No	N/A	Remarks	Reference	
						BS	CL
4.2.8	Upon actuation of any manual call point in the building, the correct audio/visual warning device for the fire alarm and detection system is initiated.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
4.2.9	The delay between operation of a manual call point and the giving of an "evacuate" signal in the alarm zone does not exceed 3 seconds.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	20.2b)	
4.2.10	All VFA flashing light is visible to normal eyesight in the required protected areas when the fire alarm system is actuated.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Code	
4.2.11	VFA signal is clearly distinguishable from any other non-fire services visual signals.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
4.3	<u>Power Supplies</u>						
4.3.1	For occupied premises, the standby battery is sufficient to maintain the system in operation for at least 24 hours, plus at least 30 min. for an "evacuate" signal in all alarm zones.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	25.4e)1)	
4.3.2	For unoccupied premises, the standby battery is sufficient to maintain the system in operation for at least 24 hours longer than maximum period likely to be unoccupied or for 72 hours in total, whichever is the less, after which to operate all fire alarm devices for at least 30 min.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	25.4.e)4)	

	Yes	No	N/A	Remarks	Reference	
					BS	CL
4.3.3 In building with standby generator that serves fire alarm system, capacity is sufficient to maintain the system in operation for at least six hours, plus at least 30 min. for an "evacuate" signal in all alarm zones.	[]	[]	[]	25.4e)1)	
					25.4e)2)	
4.3.4 The normal or standby supply is indicated by a green indicator at main indicating equipment.	[]	[]	[]	25.3c)	
4.3.5 Each of the normal supply and the standby supply is capable of supplying the largest load under normal, fire and fault conditions.	[]	[]	[]		
4.4 Control and Indicating Equipment						
4.4.1 Alarm is given from the alarm sounder installed at building external upon fire detection.	[]	[]	[]		
4.4.2 Direct telephone link (DTL) to service provider's Computerized Fire Alarm Transmission System (CFATS) is connected. (Please state DTL no.:)	[]	[]	[]		
4.4.3 Other panel function works properly:						
(a) alarm silence/reset.	[]	[]	[]		
(b) battery supply on. (if applicable)	[]	[]	[]		
(c) power on/failure indicator.	[]	[]	[]		
(d) direct link failure indicator. (if applicable)	[]	[]	[]		
(e) zone alarm/fault indicator.	[]	[]	[]		

	Yes	No	N/A	Remarks	Reference	
					BS	CL
4.4.4 Detector solely using as actuating devices for fire service systems such as fire shutter, VAC control, fixed installations other than water, fixed installation using water, pressurization system, and smoke extraction systems are linked to the Computerized Fire Alarm Transmission System (CFATS) via DTL. (Remark: This linking is not mandatory.)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
4.4.5 For addressable type alarm annunciation panel, a facility/provision is provided so that individual detector can be tested without either sounding an alarm or requiring the complete system to be disabled to prevent such an alarm.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		

V. Documentation

5.1 The following equipment list and catalogues are provided (where applicable):						
(a) alarm annunciation panel;	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
(b) repeater panels;	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
(c) detectors;	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
(d) manual call points;	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
(e) alarm sounders;	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
(f) visual fire alarm;	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
(g) fire resisting cables.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
5.2 FSD approval/listing by product certification bodies are provided for the following equipment:						1/2007
(a) alarm annunciation panel;	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
(b) repeater panels;	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
(c) detectors;	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
(d) manual call points;	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
(e) alarm sounders;	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
(f) visual fire alarm with sounder.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		

		Yes	No	N/A	Remarks	Reference	
						BS	CL
5.3	Testing certificates are provided for the fire resistant cables.	[ ]	[ ]	[ ]	.....	
5.4	Sound level measurement (including background noise) report for alarm sounders is provided.	[ ]	[ ]	[ ]	.....	
5.5	Calculation showing the required battery capacity is provided.	[ ]	[ ]	[ ]	.....	
5.6	Letter certifying the completion of the DTL to the FSCC/authorized service provider is provided.	[ ]	[ ]	[ ]	.....	
5.7	Confirmation or certification from panel manufacturer on the compatibility between the fire alarm control panel(s) and detectors is provided.	[ ]	[ ]	[ ]	.....	
5.8	As-fitted fire service installation drawings including the following are provided:						
	(a) schematic diagrams of the fire alarm and detection system;	[ ]	[ ]	[ ]	.....	
	(b) floor layout plans showing the location of detectors, devices, alarm annunciation panel and repeater panel(s) as applicable.	[ ]	[ ]	[ ]	.....	

Test witnessed by:

Signature:

Name of Responsible Engineer:

Name of FSI Contractor:

Company Chop:

Registration No.: RC1/..... and RC2/..... **Date:**