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## STREET, DRAINAGE AND BUILDING ACT 1974

### SELANGOR UNIFORM BUILDING (AMENDMENT) (NO. 2) BY-LAWS 2012

IN exercise of the powers conferred by section 133 of the Street, Drainage and Building Act 1974 [*Act 133*], the State Authority makes the following by-laws:

#### **Citation**

1. These by-laws may be cited as the **Selangor Uniform Building (Amendment) (No. 2) By-Laws 2012**.

#### **General amendment**

2. Selangor Uniform Building By-Laws 1986 [*Sel. P.U. 26/1985*] which are referred to as the “principal By-Laws” in these By-Laws is amended—

- (a) in the national language text, by substituting for the word “fee” wherever they appear with the word “fi”; and
- (b) by substituting for the word “dead” wherever they appear with the word “permanent”.

## **Amendment of by-law 2**

3. By-law 2 of the principal By-Laws is amended by inserting after the definition of “MS” the following definition:

““MS EN” means the latest published edition of the Malaysian Standard which is identical to the European Standard;”.

## **New section IA**

4. The principal By-Laws is amended by inserting after by-law 2 the following part:

### **“PART IA**

#### **DEMOLITION OF BUILDINGS**

“Application of this Part 2A. This Part shall apply to the demolition of a building before reconstruction thereof.

Preparation and submission of demolition plan, etc. 2B. (1) Before the demolition is commenced, one copy of the detailed demolition plan together with a copy of the stability report prepared in accordance with MS 2318:2010 (P) shall be submitted to the local authority.

(2) The detailed demolition plan shall bear a certificate by the submitting person as in Form A of the Second Schedule to the effect that the details are in accordance with MS 2318:2010 (P) and that the submitting person accepts full responsibility.

Power of local authority to reject demolition plan and stability report 2C. Notwithstanding paragraph (2) of by-law 2B, the local authority may examine and in so doing may reject any demolition plan or stability report which is not in accordance with MS 2318:2010 (P) and if it rejects such plan or report it may require such submitting person to resubmit a new demolition plan or stability report in respect of the rejected portion.

Notice of commencement or resumption of building operations

2D. (1) Notice of the intention to commence or resume the demolition of a building required under subsection 70(9) of the Act shall be made in Form B of the Second Schedule and shall include particulars of the intended work.

(2) If the work is not commenced or resumed on the date given in such notice, a further notice in Form B of the Second Schedule shall be given before the work may be commenced or resumed.

Methods of demolition.

2E. The demolition works shall conform to MS 2318:2010 (P).

Duties of submitting person.

2F. (1) The submitting person certifying the plan under paragraph (2) of by-law 2B shall be responsible for the proper execution of the demolition works and shall continue to be so responsible until the completion of the demolition works unless—

(a) with the agreement of the local authority, another submitting person is appointed to take over; or

(b) the local authority agrees to accept his withdrawal or replacement at the request of the owner provided that the demolition works has not commenced.

(2) Where the local authority agrees to accept the submitting person's withdrawal or replacement under subparagraph (1)(b), the demolition works shall not commence until another submitting person is appointed to take over.

(3) Where any submitting person who has submitted the demolition plan has died or become bankrupt or cannot be found or has been deregistered from the register or for any other reason ceased to practice, the owner or occupier shall as soon as practicable appoint another submitting person to act for him and to submit adequate evidence to the local authority of the circumstances.

Exemption from this Part.

2G. The local authority may if it deems fit exempt any minor demolition work from the requirements of this Part.”.

### **Amendment of by-law 3**

5. By-law 3 of the principal By-Laws is amended by deleting subparagraph (1)(d).

### **Amendment of by-law 5**

6. By-law 5 of the principal By-Laws is amended—

(a) by renumbering the existing provision as paragraph (1) of that by-law; and

(b) by inserting after the renumbered paragraph (1), the following paragraph:

“(2) The erection of a building shall be carried out under the fulltime supervision of a construction site supervisor who is accredited and certified by the Lembaga Pembangunan Industri Pembinaan Malaysia under the Lembaga Pembangunan Industri Pembinaan Malaysia Act 1994 [Act 520].”.

#### **Amendment of by-law 8**

7. By-law 8 of the principal By-Laws is amended by substituting for the paragraph (1) the following paragraph:

“(2) One set of the plans shall be returned after approval.”.

#### **Amendment of by-law 9**

8. By-law 9 of the principal By-Laws is amended in the national language text—

(a) in the marginal note by substituting for the word “Skel” the word “Skala”;

(b) by substituting for the word “skel” wherever they appear with the word “skala”.

#### **Amendment of by-law 10**

9. By-law 10 of the principal By-Laws is amended in subsubparagraph (1)(a)(iv) by inserting after the word “dimensions” the words “and area”.

#### **Amendment of by-law 16**

10. By-law 16 of the principal By-Laws is amended in paragraph (2) by deleting for the word shall be on linen and each copy”.

#### **Amendment of by-law 34A**

11. By-law 34A of the principal By-Laws is amended by deleting paragraph (6).

#### **Amendment of by-law 38**

12. By-law 38 of the principal By-Laws is amended by substituting for the word “2.25” the word “2.10”.

## **New by-laws 38A and 38B**

13. The principal By-Laws is amended by inserting after by-law 38 the following by-law”:

“Energy  
efficiency in  
buildings.

38A. (1) New or renovated non-residential buildings with air-conditioned space exceeding 4,000 square meters shall be—

(a) designed to meet the requirements of MS 1525 with regards to the Overall Thermal Transfer Value (OTTV) and the Roof Thermal Transfer Value (RTTV); and

(b) provided with an Energy Management System.

(2) The roof for all buildings (residential and non residential) shall not have a thermal transmittance (U-value) greater than—

(a) 0.4 W/m<sup>2</sup>K for Light (under 50 kg/m<sup>2</sup>) weight roof; and

(b) 0.6 W/m<sup>2</sup>K for Heavy (above 50 kg/m<sup>2</sup>) weight roof,

unless provided with other shading or cooling means.

Protection  
of building  
structures against  
lightning strikes.

38B. (1) The assessment of risks and provision of measures to protect building structures against lightning strikes shall comply with the requirements set out in MS IEC 62305.

(2) For the purpose of paragraph (1), “MS IEC” means the latest published edition of the Malaysian Standard which is identical to the International Electrotechnical Commission Standard.”.

## **Amendment of by-law 39**

14. By-law 39 of the principal By-Laws is amended—

(a) in paragraph (1)—

(i) by inserting after the words “such room and” the words “not less than half out of this 10% floor area ”; and

(ii) by deleting for the word “of air of not less than 5% of such floor area”.

(b) in paragraph (2)—

(i) by inserting after the words “such room and” the words “not less than two third out of this 15% floor area”; and

(ii) by deleting for the word “of air of not less than 10% of such floor area”.

- (c) in paragraph (3)—
  - (i) by inserting after the words “such room and” the words “not less than half out of this 20% floor area”; and
  - (ii) by deleting for the word “of air of not less than 10% of such floor area”.

#### **Amendment of by-law 41**

- 15. By-law 41 of the principal By-Laws is amended—
  - (a) in paragraph (1) by substituting for the words “may be waived at the discretion of the local authority” the words “shall not apply”; and
  - (b) in paragraph (2) by substituting for the words “Any application for the waiver of the relevant by-laws shall only be considered if in addition to the permanent air-conditioning system there is provided alternative approved” the words “Permanent air-conditioning system shall be provided with alternate”.

#### **Amendment of by-law 54**

- 16. By-law 54 of the principal By-Laws is amended—
  - (a) in paragraph (2)—
    - (i) by substituting for the subparagraph (a) the following paragraph:
      - “(a) permanent loads shall be calculated in accordance with MS EN 1991-1-1 or as provided hereinafter;”;
    - (ii) in subparagraph (b) by substituting for the words “BSCP 3 Chap. V Part 1 or as provided hereinafter in this Part” the words “MS EN 1991-1-1 or as provided hereinafter”; and
    - (iii) by substituting for the subparagraph (c) the following subparagraph:
      - “(c) wind loads shall be calculated in accordance with MS 1553.”; and
  - (b) by deleting paragraph (3).

#### **Amendment of by-law 56**

- 17. By-law 56 of the principal By-Law is amended—
  - (a) in paragraph (1) by substituting for the words “BS 648” the words “accordance with MS EN 1991-1-1”; and
  - (c) in paragraph (2) by substituting for the words “Fourth Schedule to these By-Laws” the words “MS EN 1991-1-1”.

### **Amendment of by-law 57**

18. By-law 57 of the principal By-Laws is amended by deleting for the words “(102 kgf/m<sup>2</sup>)”.

### **Substitution of by-law 59**

19. The principal By-Laws is amended by substituting for by-law 59 the following by-law:

<sup>“Imposed floor loads.”</sup> 59. All Imposed floor loads shall be calculated in accordance with MS EN 1991-1-1.”.

### **Amendment of by-law 60**

20. By-law 60 of the principal By-Laws is amended by inserting after the words “the floors” the words “in accordance with MS EN 1991-1-1”.

### **Amendment of by-law 61**

21. By-law 61 of the principal By-Laws is amended—

(a) in paragraph (1)—

(i) in the English language text, by substituting for the word “if” the word “of”;

(ii) by substituting for the word “for the following loads:” the words “in accordance with MS EN 1991-1-1.”; and

(iii) by deleting for subparagraphs (a) and (b).

(b) by deleting paragraph (2); and

(c) by renumbering paragraph (3) as paragraph (2).

### **Substitution of by-law 62**

22. The principal By-Laws is amended by substituting for by-law 62 the following by-law:

<sup>“Reductions in total imposed floor loads.”</sup> 62. The reduction in assumed total imposed floor loads given in MS EN 1991-1-1 may be taken in designing columns, piers, walls, their supports and foundations.”.

### **Substitution of by-law 63**

23. The principal By-Laws is amended by substituting for by-law 63 the following by-law:

“Imposed roof loads. 63. For the purpose of this by-law, imposed roof load shall be designed in accordance with MS EN 1991-1-1.”.

### **Substitution of by-law 64**

24. The principal By-Laws is amended by substituting for by-law 64 the following by-law:

“Curved roofs. 64. The imposed load on a curved roof shall be calculated in accordance with MS EN 1991-1-1.”.

### **Substitution of by-law 65**

25. The principal By-Laws is amended by substituting for by-law 65 the following by-law:

“Roof coverings. 65. To provide for loads incidental to maintenance, all roof coverings, other than glazing, shall be in accordance with MS EN 1991-1-1.”.

### **Substitution of by-law 67**

26. The principal By-Laws is amended by substituting for by-law 67 the following by-law:

“Amount of suspended load. 67. Any panel point of the lower chord of such roof trusses or any point of such other primary structural members supporting roofs over garages, manufacturing or storage floors shall be designed in accordance with MS EN 1991-1-1.”.

### **Amendment of by-law 68**

27. By-law 68 of the principal By-Laws is amended—

(a) by substituting for paragraph (3) the following paragraph:

“(3) In the absence of sufficient data for such calculation, the increase in the imposed loads shall be in accordance with MS EN 1991-1-1.”; and

(b) in paragraph (4) by inserting after the words “than 20%” the words “or the minimum standard specified in the MS EN 1991-1-1, whichever is the higher”.



### **Substitution of by-law 69**

28. The principal By-Laws is amended by substituting for by-law 69 the following by-law:

“Crane gantry girders. 69. In respect of crane gantry girders, all forces set up by vibration, shock from slipping of slings, kinetic action of acceleration and retardation and impact of wheel loads shall be designed in accordance with MS EN 1991-1-1.”.

### **Substitution of by-law 70**

29. The principal By-Laws is amended by substituting for by-law 70 the following by-law:

“Parapets and balustrades. 70. Parapets, balustrades and lower panel of cladding or curtain walls shall be designed for the minimum loads in accordance with MS EN 1991-1-1.”.

### **Substitution of by-law 71**

30. The principal By-Laws is amended by substituting for by-law 71 the following by-law:

“Vehicle barriers for car-parks. 71. All vehicle barriers including enclosing parapets and balustrades shall be designed to withstand the impact force of vehicle in accordance with MS EN 1991-1-1.”.

### **Amendment of by-law 72**

31. By-law 72 of the principal By-Laws is amended in paragraph (3) by inserting after the words “applied” the words “including any artesian pressure”.

### **Amendment of by-law 73**

32. By-Law 73 of the principal By-Laws is amended—

(a) by inserting before paragraph (1) the following paragraph:

“(1) The earthworks, the underground building works and the foundations for the building shall be designed based on the field and laboratory tests of a proper site investigation. The tests are to be initiated and supervised by a Professional Engineer with the relevant geotechnical experience.”;

(b) by renumbering the existing paragraph (1) as paragraph (2);

(c) in the renumbered subparagraph (2)(b), by substituting for the words “swelling and shrinking of the subsoil” the words “soil settlement and movement”; and

(d) by substituting for the existing paragraph (2) the following paragraph:

“(3) The requirements of paragraph (2) shall be deemed to be satisfied if the foundations of a building are designed and constructed in accordance with MS EN 1997.”.

#### **Deletion of by-law 74**

33. The principal By-Laws is amended by deleting by-law 74.

#### **Substitution of by-law 75**

34. The principal By-Laws is amended by substituting for by-law 75 the following by-law:

“Reinforced  
concrete  
foundations.

75. Reinforced concrete foundation shall be designed and constructed in accordance with MS EN 1990, MS EN 1991 and MS EN 1992.”.

#### **Deletion of by-law 76**

35. The principal By-Laws is amended by deleting by-law 76.

#### **New by-laws 76A**

36. The principal By-Laws is amended by inserting after by-law 76 the following by-law:

“Buildings on  
hill slopes.

76A. Every building to be constructed on hill slopes shall comply with any planning requirement as the local authority may determine.”.

#### **Deletion of by-law 77**

37. The principal By-Laws is amended by deleting by-law 77.

### **Substitution of by-law 78**

38. The principal By-Laws is amended by substituting for by-law 78 the following by-law:

“Foundations  
below invert of  
drains.

78. Within a distance not less than the depth of a drain measured from the closer edge of the drain, no part of a building shall be erected with its substructure foundation level higher than 450 millimeters below the drain invert level, unless the whole of such building is carried on piles other than timber piles.”.

### **Substitution of by-law 79**

39. The principal By-Laws is amended by substituting for by-law 79 the following by-law:

“Foundations  
under external  
and party walls.

79. Where an external wall is built against another external wall or against a party wall of an adjacent building lot, the extent of concrete foundations shall not extend beyond its own lot boundary.”.

### **Amendment of by-law 80**

40. By-law 80 of the principal By-Laws is amended by substituting for paragraph (2) the following paragraph:

“(2) The requirements of paragraph (1) shall be deemed to be satisfied if the design and construction of the structure or part of the structure complies with the following Standards:

- MS EN 1990 – Basis of Structural Design;
- MS EN 1991 – Actions on structures;
- MS EN 1992 – Design of concrete structures;
- MS EN 1993 – Design of steel structures;
- MS EN 1994 – Design of composite steel and concrete structures;
- MS EN 1995 – Design of timber structures;
- MS EN 1996 – Design of masonry structures;
- MS EN 1998 – Design of structures for earthquake resistance; and
- MS EN 1999 – Design of aluminum structures.”.

### **Amendment of by-law 81**

41. By-law 81 of the principal By-Laws is amended in paragraph (1) by substituting for the words “such has been rendered or become innocuous and has been covered with a layer of hill earth, hardcore, clinker or ash rammed solid to at least 0.305 metre thickness.” the words “has been properly treated based on geotechnical techniques conforming to MS 1754 and MS 1756.”.

### **Amendment of by-law 83**

42. By-law 83 of the principal By-Laws is amended by substituting for the paragraph (1) the following paragraph:

“(1) All slopes in and around buildings shall be suitably protected against soil erosion and slope failures and shall be monitored and maintained regularly.”.

### **Amendment of by-law 84**

43. By-law 84 of the principal By-Laws is amended in paragraph (3)—

(a) by deleting for the words “brick or masonry”;

(b) by substituting for the words “strip footings” the word “foundation”;  
and

(c) in subparagraph (b) by substituting for the word “timbers” the word “portion”.

### **Deletion of by-law 86**

44. The principal By-Laws is amended by deleting by-law 86.

### **Deletion of by-law 87**

45. The principal By-Laws is amended by deleting by-law 87.

### **Amendment of by-law 88**

46. By-law 88 of the principal By-Laws is amended—

(a) by deleting for the word “or a party wall”; and

(b) in paragraph (a) by deleting for the words “and 200 millimetres thick in a party wall”.

### **Deletion of by-law 89**

47. The principal By-Laws is amended by deleting by-law 89.

### **Deletion of by-law 92**

48. The principal By-Laws is amended by deleting by-law 92.

### **Amendment of by-law 93**

49. By-law 93 of the principal By-Laws is amended in subparagraph (ii) by substituting for the word “piers” the word “column”.

### **Deletion of by-law 94**

50. The principal By-Laws is amended by deleting by-law 94.

### **Deletion of by-law 97**

51. The principal By-Laws is amended by deleting by-law 97.

### **Substitution of by-law 99**

52. The principal By-Laws is amended by substituting for by-law 99 the following by-law:

“Cooking facilities in residential buildings.

99. (1) Every residential building and every floor of a residential building which is or may be separately let for dwelling purposes shall be provided with a kitchen.

(2) Where a common vertical kitchen exhaust riser is provided, the riser shall be continued up to a mechanical floor or roof for discharge to the open, and shall be constructed with fire resisting material of at least 2 hours rating in accordance with BS 476: Part 3.”.

### **Deletion of by-law 100**

53. The principal By-Laws is amended by deleting by-law 100.

### **Deletion of by-law 103**

54. The principal By-Laws is amended by deleting by-law 103.

### **Deletion of by-law 104**

55. The principal By-Laws is amended by deleting by-law 104.

### **Amendment of by-law 107**

56. By-law 107 of the principal By-Laws is amended in paragraph (2) by substituting for the word “2225” wherever they appear with the word “2200”.

### **Substitution of by-law 109**

57. The principal By-Laws is amended by substituting for by-law 109 the following by-law:

“Winders. 109. Winding and spiral staircase shall not form part of the exit route.”.

### **Substitution of by-law 111**

58. The principal By-Laws is amended by substituting for by-law 111 the following by-law:

“Lighting and ventilation of staircases. 111. All staircases shall be properly lighted at an average illuminance level of not less than 100 lux and ventilated according to the requirements as stipulated under by-laws 198 to 200 of Part VII.”.

### **Deletion of by-law 114**

59. The principal By-Laws is amended by deleting by-law 114.

### **Substitution of by-law 117**

60. The principal By-Laws is amended by substituting for by-law 117 the following by-law:

“Access to roof space. 117. Where the space beneath a roof is enclosed by a ceiling, access to such space shall be provided by means of a trap door at least 600 millimetres in any direction.”.

### **Deletion of by-law 118**

61. The principal By-Laws is amended by deleting by-law 118.

### **Deletion of by-law 120**

62. The principal By-Laws is amended by deleting by-law 120.

### **Deletion of by-law 121**

63. The principal By-Laws is amended by deleting by-law 121.

### **Deletion of by-law 122**

64. The principal By-Laws is amended by deleting by-law 122.

### **Deletion of by-law 123**

65. The principal By-Laws is amended by deleting by-law 123.

### **Amendment of by-law 133**

66. By-law 133 of the principal By-Laws is amended—

(a) by deleting the definition of—

- (i) ‘ “dry rising system” means a vertical water main which is normally dry, of appropriate size, and fitted with hydrant outlets which can be charged with water by the Fire Authority’s pumps via a fire service inlet and shall comply with BS 3980 and BSCP 402.101;’;
- (ii) ‘ “fire alarm installation” means an installation capable of warning persons of an outbreak of fire. Such installation must have detectors conforming to the Rules of the Fire Officers’ Committee for Automatic Fire Alarm Installation, and installed in accordance with BSCP 1019;’;
- (iii) ‘ “fire hydrant” means an installation of pipes, water tanks, pumps and hydrant outlets in a building to provide a ready means by which a jet of water can be delivered in any part of the building for the purpose of fire fighting and to comply with BSCP 402.101;’;
- (iv) ‘ “F.O.C.” means Fire Officers’ Committee of the United Kingdom;’;
- (v) ‘ “hose reel installation” means an installation of pipes, water tanks, pumps and hose reels in a building to provide a ready means by which a jet of water can be delivered in any part of the building for the purpose of fire fighting and to comply with BSCP 402.101;’;
- (vi) ‘ “sprinkler installation” means an installation of water supplies, pump, pipes, valves and delivery points so arranged as to automatically detect a fire and attack it with water, sound an alarm and installed in accordance with the current edition of the F.O.C. Rules for Automatic Sprinkler Installation or other approved standards;’; and
- (vii) ‘ “wet rising system” means any permanently charged vertical water main installed for firefighting purposes, of an appropriate size, and fitted with connections suitable for use by the Fire Authority’s and to comply with the requirements of BSCP 402.101.’.

(b) in the definition of “D.G.F.S.”, by substituting for the words “Director General of Fire Services” the words “Director General of Fire and Rescue”;

(c) by inserting after the definition of “MSCP” the following definitions:

‘ “open corridor” means a corridor that has wall openings open to the atmosphere primarily for the adequate dissipation of smoke;

(d) in the definition of “fire resisting” by deleting after the word “BS 476:” the words “: Part 8: 1972”;

(e) by inserting after the definition of “factory” the following definition:

‘ “Fire Authority” means the officer in charge of the relevant Fire and Rescue Department or any officer authorized by him in writing;’;

(f) in the definition of “fire resistance period” by substituting for the words “BS 476; Part 1: 1953” the words “MS 1073”;

(g) in the definition of “non-combustible” by deleting after the word “BS 476:” the words “: Part 4 (1970)”; and

(h) in the definition of “smoke stop door” by substituting for the words “Section 7 of BS 476: Part 8: 1972” the words “MS 1073”; and

(i) by inserting after the definition of “open corridor” the following definitions:

“open structure” means a structure that, at each level, has wall openings opening to the atmosphere;’.

### **Amendment of by-law 136**

67. By-law 136 of the principal By-Laws is amended by substituting for the words “the relevant recommendations of the F.O.C. Rules for Automatic Sprinkler Installation, 29th edition” the words “MS 1910”.

### **Amendment of by-law 137**

68. The principal By-Laws is amended by substituting for by-law 137 the following by-law:

“Compartmentation by height.

137. (1) In any buildings not exceeding 30 metres in height, any floor which is more than 9 metres above ground floor level which separates one storey from another storey, other than a floor which is either within a maisonette or a mezzanine floor shall be constructed as a compartment floor.



(2) In any building exceeding 30 metres in height, all floors shall be constructed as compartment floors, other than a compartment which is within a residential maisonette which may comprise two storey levels.

(3) An atrium shall comply with the requirements of by-law 252A.”.

### **Amendment of by-law 139**

69. By-law 139 of the principal By-Laws is amended—

- (a) by renumbering the existing provision as paragraph (1) of that by-law; and
- (b) by inserting after the renumbered paragraph (1), the following paragraph:

“(2) For hospital and nursing home of Purpose Group II (Institutional), laboratories and kitchens shall not have sleeping accommodation above them and shall form separate compartments from in-patient treatment areas, public areas, staircase and lift discharge areas.”.

### **Substitution of by-law 140**

70. The principal By-Laws is amended by substituting for by-law 140 the following by-law:

“Fire appliances access.

104. (1) Access way shall be provided within the site of a building to enable fire appliances to gain access to the building. Access openings shall also be provided along the external walls of buildings fronting the access way to provide access into the building for fire fighting and rescue operations.

(2) The requirements of access way shall be as follows:

- (a) the access way shall have a minimum width of 6 metres throughout its entire length and shall be able to accommodate the entry and manouvering of fire engine, extended ladders pumping appliances, turntable and hydraulic platforms;
- (b) the access way shall be metalled or paved or laid with strengthened perforated slabs to withstand the loading capacity of stationary 30 tonnes fire appliance;
- (c) the access way shall be positioned so that the nearer edge shall be not less than 2 metres or more than 10 metres from the centre position of the access opening, measured horizontally;

- (d) the access way shall be laid on a level platform or if on an incline, the gradient shall not exceed 1:15. The access road shall be laid on a incline not exceeding a gradient of 1:8.3;
- (e) the dead-end access way and fire engine access road shall not exceed 46 metres in length or if exceeding 46 metres, be provided with turning facilities;
- (f) the outer radius for turning of access way and fire engine access road shall comply with the requirements of the Fire Authority;
- (g) the overhead clearance of fire engine access road shall be at least 4.5 metres for passage of fire appliances;
- (h) public roads may serve as access way provided that the location of such public roads is in compliance with the requirements of distance from access openings as the Fire Authority may specify; and
- (i) the access way and the fire engine access road shall be kept clear of obstructions and others parts of the building, plants, trees or other fixtures shall not obstruct the path between the access way and the access openings.

(3) All corners of the access way shall be marked as follows:

- (a) the marking of corners shall be in contrasting colour to the ground surfaces or finishes;
- (b) the access way provided on turfed area shall be marked with contrasting object (preferably reflective) that is visible at night. The markings are to be at an interval not more than 3 metres apart and shall be provided on both sides of the access way; and
- (c) a sign post displaying the wordings “Fire Engine Access – Keep Clear” shall be provided at the entrance of the access way. Size of wordings shall not be less than 50 milimeters.

(4) The proportion of the building in excess of 7000 cubic metres fronting the access way shall be in accordance with the following scale:

Volume of building in cubic metre	Minimum proportions of perimeter of building
7000 to 28000 .....	one-sixth
2800 to 56000 .....	one-fourth
56000 to 84000 .....	one-half
84000 to 112000 .....	three-fourths
112000 and above .....	island site

#### **Amendment of by-law 141**

71. By-law 141 of the principal By-Laws is amended by inserting after paragraph (3) the following paragraph:

“(4) No timber such as joists, beams, wall plates, tile battens and ties shall be built into the thickness of any separating wall unless there are not less than 100 millimetres of brickwork or cement between such timbers.”.

#### **Amendment of by-law 144**

72. By-law 144 of the principal By-Laws is amended in paragraph (2) by deleting for the word “: Part 6: 1968”.

#### **Deletion of by-law 154**

73. The principal By-Laws is amended by deleting by-law 154.

#### **Amendment of by-law 159**

74. By-law 159 of the principal By-Laws is amended by substituting for the word “D.G.F.S.” the word “D.G.F.R.”.

#### **Amendment of by-law 162**

75. By-law 162 of the principal By-Laws is amended by deleting paragraph (5).

#### **Substitution of by-law 163**

76. The principal By-Laws is amended by substituting for by-law 163 the following by-law:

“Fire doors. 163. Fire doors including frames shall be constructed in accordance with MS 1073.”.

#### **Amendment of by-law 165**

77. By-law 165 of the principal By-Laws is amended in substituting for paragraph (3) the following paragraph:

“(3) In any of individual room which is subjected to occupancy of not more than six persons, the travel distance shall be measured from the door of such room:

Provided that the area of the room does not exceed 15 square metres or any other area determined by the Fire Authority.”.

### **Amendment of by-law 167**

78. By-law 167 of the principal By-Laws is amended by substituting for the words “in no case closer not exceed than 4.5” “the words “shall not be less than 5.0”.

### **Amendment of by-law 168**

79. By-law 168 of the principal By-Laws is amended in paragraph (3) by substituting for the word “75” the word “80”.

### **Amendment of by-law 169**

80. By-law 169 of the principal By-Laws is amended—

- (a) by renumbering the existing provision as paragraph (1) of that by-law; and
- (b) by inserting after the renumbered paragraph (1) the following paragraph:

“(2) For hospital and nursing home of Purpose Group II (Institutional)—

- (a) corridors and landings shall be designed to accommodate stretcher and bed movement; and
- (b) design shall provide for horizontal evacuation of bed patients for at least 50% of the total bed patients from the floor concerned.”.

### **Amendment of by-law 172**

81. By-law 172 of the principal By-Laws is amended by substituting for paragraph (3) the following paragraph:

“(3) The design and installation of every emergency exit sign shall be in compliance with MS 983 and MS 619.”.

### **Amendment of by-law 189**

82. By-law 189 of the principal By-Laws is amended—

- (a) in paragraph (1) by substituting for the word “1,200 millimetres” the word “12 metres”; and
- (b) by substituting for paragraph (2) the following paragraph:

“(2) In a building of Purpose Group IV (Office), open corridor design may have unenclosed staircases if provided with extended landings of not less than twice staircase width and walls separating the staircase from the occupancy be returned for a distance of not less than 1 metre along the frontage of adjacent occupancies.”.

### **Substitution of by-law 194**

83. The principal By-Laws is amended by substituting for by-law 194 the following by-law:

- “Building with single staircase 194. A single staircase may be permitted in the following premises:
- (a) any dwellings at a height of 12 metres measured from the fire appliance access level to the highest and lowest floor; and
  - (b) any shop houses or dwellings not exceeding two (2) storeys or the first storey not exceeding 6 metres from the ground level.”.

### **Amendment of by-law 197**

84. By-law 197 of the principal By-Laws is amended in paragraph (2) by substituting for the word “D.G.F.S.” the word “D.G.F.R.”.

### **New by-laws 197A and 197B**

85. The principal By-Laws is amended by inserting after by-law 197 the following by-laws:

- “Means of access and fire fighting in building over 18.0 metres high. 197A. (1) Buildings in which the topmost floor is more than 18.0 metres above fire appliance access level shall be provided with means of gaining access and fighting fire from within the building consisting of fire fighting access lobbies, fire fighting staircases, fire lifts and dry or wet rising systems.
- (2) Fire fighting access lobbies shall be provided at every floor level and shall be so located that the level distance from the furthest point of the floor does not exceed 45.0 metres.
- (3) Fire fighting access lobbies may be omitted if the fire fighting staircase is pressurised to meet the requirements of by-law 200 and all fire fighting installations within the pressurised staircase enclosure do not intrude into the clear space required for means of egress.
- (4) A fire fighting staircase shall be provided to give direct access to each fire fighting access lobby and shall be directly accessible from outside the building at fire appliance access level. This may be one of the staircases required as a means of egress from the building.
- (5) A fire lift shall be provided to give access to each fire fighting access lobby or in the absence of a lobby to the fire fighting staircase at each floor level.

(6) The fire lift shall discharge directly into the fire fighting access lobby fire fighting staircase or shall be connected to it by a protected corridor.

(7) In a building where the top occupied floor is over 18.5 metres above the fire appliance access level fire lifts shall be provided.

(8) A penthouse occupying not more than 50% of the area of the floor immediately below shall be exempted from this measurement.

(9) The fire lifts shall be located within a separate protected shaft if it opens into a separate lobby.

(10) Fire lifts shall be provided at the rate of one lift in every group of lifts which discharge into the same protected enclosure or smoke lobby containing the rising main, provided that the fire lifts are located not more than 61 metres travel distance from the furthestmost point of the floor.

(11) All lifts serving upper floors shall not extend to basement floors except where the basement floors only contain low fire loads or are used solely for car parking. In all the permitted situations, protected lobbies shall be provided which shall be interposed between the lift openings and the areas served.”.

“Fire fighting  
access lobbies.

197B. Fire fighting access lobbies shall conform to the following requirements:

- (a) each lobby shall have a floor area of not less than 6.0 square metres; and
- (b) the openable area of windows or area of permanent ventilation shall be not less than 25% of the floor area of the lobby and, if ventilation is by means of openable windows, additional permanent ventilation having a free opening of 464 square centimetres shall be provided except that mechanical pressurisation may be provided as an alternative.”.

### **Amendment of by-law 198**

86. By-law 89 of the principal by-Laws is amended—

- (a) in paragraph (2) by substituting for the word “D.G.F.S.” the word “D.G.F.R.”; and
- (b) by deleting paragraph (3).

### **Amendment of by-law 199**

87. By-law 199 of the principal By-Laws is amended—

- (a) in the marginal note by inserting after the word “exceeding” the words “three storeys or”; and
- (b) by substituting for the words “18 metres” the words “three storeys or 18 metres, whichever is the earlier,”.

### **Amendment of by-law 200**

88. By-law 200 of the principal By-Laws is amended by substituting for paragraph (b) the following paragraph:

- “(b) mechanically pressurisation of the staircase enclosure designed and installed in accordance with MS 1472.”.

### **Substitution of by-law 202**

89. The principal By-Laws is amended by substituting for by-law 202 the following by-law:

“Pressurised  
system for  
staircases.

202. All staircases serving buildings of more than 45 metres in height where there is no adequate ventilation as required shall be provided with a staircase pressurization system designed and installed in accordance with MS 1472.”.

### **Amendment of by-law 204**

90. By-law 204 of the principal By-Laws is amended—

- (a) by renumbering the existing paragraphs (A), (B) and (C) as paragraphs (a), (b) and (c) respectively;
- (b) in the renumbered paragraph (a), by renumbering the existing subparagraphs (a) and (b) as subparagraphs (i) and (ii) respectively;
- (c) in the renumbered subparagraph (a)(ii), by deleting for the words “Part 6, 1968, have an index of performance (A) not exceeding 12 and a subindex (i) not exceeding 6:”;
- (d) by deleting proviso to the renumbered paragraph (a); and
- (e) in the renumbered paragraph (b), by deleting the for words “: Part 1, Section 2, 1953”.

### **Substitution of by-law 207**

91. The principal By-Laws is amended by substituting for by-law 207 the following by-law:

“Exception relating to ceilings.

207. Walls and ceiling finishes in the form of thin sheet of not more than 1 millimetre thickness mounted on a non combustible substrate shall not be subject to the requirement of surface spread of flame provisions provided that this exception shall not apply to smoke stop or fire fighting lobbies, and exit staircase and passageway.”.

### **Substitution of by-law 211**

92. The principal By-Laws is amended by substituting for by-law 211 the following by-law:

“Roofing materials.

211. (1) Surface or materials for roof covering and roof construction shall have a surface spread of flame rating not lower than class 1, except in the case of Purpose Groups I and III shown in Fifth Schedule of these By-laws and in buildings that are protected throughout with automatic sprinkler system.

(2) D.G.F.R. may approve the use of combustible material for roof construction for buildings of Purpose Groups II, IV, V and VI as shown in Fifth Schedule to these By-laws if the following requirements are satisfied:

- (a) the building does not exceed four storeys;
- (b) the roof space between the roof and the ceiling shall be cavity barrier where required to comply with relevant provisions, and openings in cavity barriers shall be fire-stopped; and
- (c) if the underside of the roof serves as ceiling to room or space, the elements of the underside or the roof shall comply with the relevant provision of by-law 204.

(3) At the junctions with separating wall or compartment wall, the roof construction shall comply with the requirements as the Fire Authority may specify.”.

### **New by-law 211A**

93. The principal By-Laws is amended by inserting after by-law 211 the following by-law:

“Materials for construction.

211A. (1) Materials used in the construction of building elements shall comply with the requirements stated under this Part in addition to the performance requirements such as for fire resistance and limit to spread of flame.



(2) Instumescent paints is allowed to be used for protection of structural steel member of all building provided that—

- (a) the paints shall be of proprietary system that has been tested to achieve the fire resistance performance as required in BS 476; and
- (b) coating of instumescent paint onto structural steel, and subsequent maintenance shall conform to BS 8202.

(3) In buildings which are protected by automatic sprinkler system, fire rated glass can be used for the construction of compartment wall, compartment floors, enclosure to smoke stop lobby, fire fighting lobby, protected shafts not containing exit staircase and fire lift, subject to the following:

- (a) the wall and doors shall have necessary fire resistance, including insulation, when subject to test under BS 476 for the wall and MS 1073 for the door; and
- (b) the walls and door shall meet the Class A of impact performance requirements when subject to test under BS 6206 or AS 2208.

(4) Walls, ceiling, roof covering and finishes shall not contain any plastic material.

(5) For the purpose of this by-law, “AS” means the latest published edition of the Australian Standard.”.

#### **Amendment of by-law 222**

94. By-law 222 of the principal By-Laws is amended by deleting for the word “:Part 1:”.

#### **Amendment of heading to Part VIII**

95. Part VIII of the principal By-Laws is amended by substituting for the heading “FIRE ALARMS, FIRE DETECTION, FIRE EXTINGUISHMENT AND FIRE FIGHTING ACCESS” the heading “FIRE DETECTION, FIRE ALARM AND FIRE EXTINGUISHMENT”.

#### **Amendment of by-law 225**

96. By-law 225 of the principal By-Laws is amended—

- (a) in the marginal note, by inserting after the word “Detecting” the word “, warning”;

(b) by substituting for paragraph (1) and (2) the following paragraphs respectively:

“(1) Every building shall be provided with means of detecting, warning and extinguishing fire in accordance with the requirements as specified in the Tenth Schedule.

(2) Every building shall be served by at least one fire hydrant located not more than 45 metres from the fire brigade access, designed and installed in accordance with MS 1489. In any case, hydrants shall be located not more than 90 metres apart.”; and

(c) in paragraph (3), by substituting for the words “Fire Authority” the word “D.G.F.R.”.

#### **New by-law 226A**

97. The principal By-Laws is amended by inserting after by-law 226 the following by-law:

“Hose reel systems. 226A. Hose reel systems shall be designed and installed in accordance with MS 1489.”.

#### **Substitution of by-law 227**

98. The principal By-Laws is amended by substituting for by-law 227 the following by-law:

“Portable extinguishers. 227. Portable extinguisher shall be designed and installed in accordance with MS 1539.”.

#### **Substitution of by-law 228**

99. The principal By-Laws is amended by substituting for by-law 228 the following by-law:

“Sprinklers systems. 228. Sprinkler systems shall be designed and installed in accordance with MS 1910.”.

#### **Amendment of by-law 229**

100. By-law 229 of the principal By-Laws is amended—

(a) in the marginal note, by substituting for the word “18.3” the word “18”;

(b) in paragraph (1), by substituting for the word “18.3” the word “18”; and

(c) in paragraph (2), by substituting for the word “45.75” the word “45”;

### **Substitution of by-law 230**

101. The principal By-Laws is amended by substituting for by-law 230 the following by-law:

“Dry riser systems.

230. (1) Dry riser systems shall be provided in every building in which the top most occupied floor is more than 18 metres but less than 30 metres above fire appliance access level.

(2) Dry riser systems shall be designed and installed in accordance with MS 1489 such that all parts of the floor are within 45 metres from a landing valve.”.

### **Substitution of by-law 231**

102. The principal By-Laws is amended by substituting for by-law 231 the following by-law:

“Wet riser systems.

231. (1) Wet rising systems shall be provided in every building in which the top most occupied floor is more than 30 metres above fire appliance access level.

(2) Wet riser systems shall be designed and installed in accordance with M.S. 1489 such that all parts of the floor are within 45 metres from a landing valve.”.

### **Deletion of by-law 233**

103. The principal By-Laws is amended by deleting by-law 233.

### **Deletion of by-law 234**

104. The principal By-Laws is amended by deleting by-law 234.

### **Amendment of by-law 235**

105. By-law 235 of the principal By-Laws is amended—

(a) in the marginal note, by substituting for the word “Installation” the words “extinguishing systems”;

(b) by substituting for the word “Installation” the words “Extinguishing systems”; and

(c) by substituting for the words “by the Fire Authority” the words “and approved by the D.G.F.R.”.

### **Amendment of by-law 236**

106. By-law 236 of the principal By-Law is amended by substituting for the words “Fire Authority” the word “D.G.F.R.”.

### **Substitution of by-law 237**

107. The principal By-Laws is amended by substituting for by-law 237 the following by-law:

“Fire detection and fire alarm systems.” 237. Fire detection and fire alarm systems shall be designed and installed in accordance with MS 1745.”.

### **Substitution of by-law 238**

108. The principal By-Laws is amended by substituting for by-law 238 the following by-law:

“Fire Command Centre.” 238. Where it is specified in the Tenth Schedule to these By-Laws that a fire command centre shall be provided, the fire command centre shall be located on the designated floor with easy fire appliances access and shall contain a panel to monitor the public address, fireman intercom, sprinkler, water flow detectors, fire detection and alarm systems and with a computerised monitoring system connected to the appropriate fire station by-passing the switchboard.”.

### **Amendment of by-law 239**

109. By-law 239 of the principal By-Laws is amended by substituting for word “92.9” the word “100”.

### **Amendment of by-law 240**

110. By-law 240 of the principal By-laws is amended—

(a) in paragraph (1)—

(i) by substituting for word “929” the word “1000”; and

(ii) by inserting after the words “isolation switch” the words “complying with IEC 60947-3 and”; and

(b) by substituting for paragraph (2) the following paragraph:

“(2) For purpose for this by-law, “IEC” means the latest published edition of the International Electrotechnical Commission Standard.”.

### **Deletion of by-law 242**

111. The principal By-Laws is amended by deleting by-law 242.

### **Deletion of by-law 243**

112. The principal By-Laws is amended by deleting by-law 243.

### **New by-law 243A**

113. The principal By-Laws is amended by inserting after by-law 243 the following by-law:

“Emergency mode of operation in the event mains power failure” 243A. (1) On failure of mains power of lifts shall return in sequence directly to the designated floor, commencing with the fire lifts, without answering any car or landing calls and park with doors open.

(2) After all lifts are parked the lifts on emergency power shall resume normal operation:

Provided that where sufficient emergency power is available for operation of all lifts, this mode of operation need not apply.”.

### **Deletion of by-law 244**

114. The principal By-Laws is amended by deleting by-law 244.

### **Substitution of by-law 245**

115. The principal By-Laws is amended by substituting for by-law 245 the following by-law:

“Approval of D.G.F.R.” of 245. (1) Any construction, development or installation of firefighting equipment or fire safety installation other than those conforming to the requirements provided in Parts VII and VIII of these By-laws shall be submitted to and approved by the D.G.F.R. before the commencement of work.

(2) Plans, drawings and calculations of all fire fighting installations shall be submitted to the Fire Authority in a manner prescribed by the D.G.F.R. before commencement of work.”.

### **Deletion of by-law 246**

116. The principal By-Laws is amended by deleting by-law 246.

### **Deletion of by-law 247**

117. The principal By-Laws is amended by deleting by-law 247.

### **Amendment of by-law 248**

118. By-law 248 of the principal By-Laws is amended—

- (a) in paragraph (1), by substituting for the words “painted red” the words “identified in red colour”; and
- (b) in paragraph (2), by substituting for the words “Fire Authority” the words “D.G.F.R.”.

### **Substitution of by-law 251**

119. The principal By-Laws is amended by substituting for by-law 251 the following by-law:

“Smoke vents to prevent dangerous accumulation of smoke.

251. Smoke control systems where specified shall be designed and installed in accordance with MS 1780.”.

### **Deletion of by-law 252**

120. The principal By-Laws is amended by deleting by-law 252.

### **New by-law 252A**

121. The principal By-Laws is amended by inserting after by-law 252 the following by-law:

“Atriums in buildings.

252A. An atrium may be permitted in a building provided that—

- (a) the horizontal dimension is not less than 6 metres and the area of opening is not less than 95 square metres;
- (b) the exits are separately enclosed from the atrium though exit access may be within the atrium;
- (c) the atrium is open and unobstructed;
- (d) the building is fully protected by automatic sprinklers;
- (e) sprinklers may be omitted for ceiling of the atrium if it is more than 17 metres above the floor;

- (f) a smoke control or smoke exhaust system of the atrium and adjacent spaces be provided as per Table 1 below or other approved standards;
- (g) the smoke control or smoke exhaust system shall be activated by—
- (i) smoke detectors located at the top of the atrium and adjacent to each return air intake from the atrium;
  - (ii) the automatic sprinkler system;
  - (iii) the automatic detector system (but not the manual break glass system); and
  - (iv) manual controls readily accessible to the Fire Authority; and
- (h) the atrium be separated from adjacent spaces by one hour fire resistance fire barriers except that—
- (i) any three levels of the building may open directly to the atrium without enclosure; and
  - (ii) glass walls may be used in lieu of fire barriers where automatic sprinklers are spaced 1.8 metres or less apart along both sides of the glass wall, not more than 0.3 metres from the glass so that the surface of the glass is wet upon operation of the sprinklers. The glass shall be float glass held in place by a gasket system allowing the frame to deflect without the glass before the sprinklers operate.

Table 1: ATRIUM SMOKE EXHAUST SYSTEM

Height of Atrium in <i>M</i>	Volume of Atrium Cubic <i>M</i>	Smoke Exhaust System (whichever is greater)		Air Supply (Lowest Level)
		Cubic <i>M</i> / Sec or	Air Change/ Hour	
17 or less	17 or less	19	6	Gravity - natural flow due to difference in density. 75% of exhaust
17 or less	17 or less	19	4	Gravity 17% of Exhaust
17 or more	-	-	4	Mechanical 75% of Exhaust"

### **Amendment of by-law 253**

122. By-law 253 of the principal By-Laws is amended by substituting for the word “available within 10 seconds of” the words “changed over within 60 seconds immediately after”.

### **New by-law 253A**

123. The principal By-Laws is amended by inserting after by-law 253 the following by-law:

“Emergency  
lights.

253A. Emergency lighting shall be installed to provide sufficient illumination for escape purposes. Such lighting shall be of the self-contained type to MS 619 or supplied with emergency power from an emergency power system or central battery bank. In all cases, the duration of emergency illumination in the event of failure of normal supply shall not be less than one hour.”.

### **Amendment of by-law 256**

124. By-law 256 of the principal By-Laws is amended by substituting for the word “by-law 141” the word “by-laws 134 and 141”.

### **Substitution of by-law 257**

125. The principal By-Laws is amended by substituting for by-law 257 the following by-law:

“Application of  
standard or code  
of practice.

257. Where any standard or code of practice is referred to in these By-laws, and there is subsequently published a corresponding Malaysian Standard or any other corresponding standard or code of practice which is acceptable to the local authority or D.G.F.R., as the case may be, on the same subject matter, the corresponding Malaysian Standard or standard or code of practice shall be deemed to have superseded such standard or code of practice referred to and shall be complied with.”.

### **Amendment of by-law 258**

126. By-law 258 of the principal By-Laws is amended—

(a) in paragraph (1)—

- (i) by substituting for the word “construction” wherever they appear the word “erection”; and
- (ii) by renumbering subparagraphs (aa), (bb) and (cc) as subparagraphs (i), (ii) and (iii) respectively.



- (b) in paragraph (3)—
- (i) by substituting for the word “construction” wherever they appear the word “erection”;
  - (ii) by renumbering subparagraphs (aa), (bb) and (cc) as subparagraphs (i), (ii) and (iii) respectively; and
- (c) by substituting for paragraph (6) the following paragraph:

“(6) The principal submitting person or submitting person, as the case may be, as mentioned under paragraph (1)(a) of by-law 2F or paragraph (1)(a) of by-law 7 shall be subject to the same provision as specified under this by-law.”.

### **Amendment of First Schedule**

127. First Schedule of the principal By-Laws is amended—

- (a) in the national language text—
- (i) by substituting for the word “fee” wherever they appear the word “fi”;
  - (ii) by substituting for the word “paragraf” wherever they appear the word “perenggan”;
  - (iii) by substituting for the word “subparagraf” wherever they appear the word “subperenggan”; and
  - (iv) by substituting for the word “baharu” wherever they appear the word “baru”.
- (b) in paragraph (1),—
- (i) in item Ground Floor, by substituting for the words “\$7.00” and “\$70.00” the words “\$14.00” and “\$140.00” respectively;
  - (ii) in item First Floor, by substituting for the words “\$6.00” and “\$60.00” the words “\$12.00” and “\$120.00” respectively;
  - (iii) in item Second Floor, by substituting for the words “\$5.00” and “\$50.00” the words “\$10.00” and “\$100.00” respectively;
  - (iv) in item Third Floor, by substituting for the words “\$4.00” and “\$40.00” the words “\$8.00” and “\$80.00” respectively;
  - (v) in item Fourth Floor and above or basement storey, by substituting for the words “\$3.00” and “\$30.00” the words “\$6.00” and “\$60.00” respectively; and
- (c) in paragraph (6),—
- (i) in item (4)(a), by substituting for the words “\$18.00” the words “\$36.00”;
  - (ii) in item (4)(b), by substituting for the words “\$18.00” the words “\$36.00”;

- (iii) in subparagraph (5), by substituting for the words “\$25.00” the words “\$50.00”;
- (d) in paragraph (7), by substituting for the words “\$25.00” the words “\$50.00”;
- (e) in paragraph (8), by substituting for the words “\$3.00” the words “\$6.00”;
- (f) in subparagraph (10)(1), by substituting for the words “\$60.00” the words “\$120.00”;
- (g) in paragraph (11),—
  - (i) in item (3)(i), by substituting for the words “\$50.00” the words “\$100.00”;
  - (ii) in item (3)(ii), by substituting for the words “\$100.00” the words “\$200.00”;
  - (iii) in subparagraph (4), by substituting for the words “\$50.00” the words “\$100.00”;
- (h) in paragraph (12), by substituting for the words “\$50.00” the words “\$100.00”;
- (i) in paragraph (13),—
  - (i) in subparagraph (a), by substituting for the words “\$50.00” the words “\$100.00”;
  - (ii) in subparagraph (b), by substituting for the words “\$20.00” the words “\$40.00”;
  - (iii) in subparagraph (c), by substituting for the words “\$18.00” the words “\$36.00”;
  - (iv) in subparagraph (d)—
    - (a) in the national language text, by substituting for the words “baharu” the word “baru”; and
    - (b) by substituting for the words “\$100.00” the word “\$200.00”;
  - (v) in subparagraph (e), by substituting for the words “\$5.00” the words “\$10.00”;
  - (vi) in subparagraph (f), by substituting for the words “\$50.00” the words “\$100.00”;
  - (vii) in subparagraph (g), by substituting for the words “\$3.00” the words “\$6.00”;
  - (viii) in subparagraph (h), by substituting for the words “\$5.00” and “\$50.00” the words “\$10.00” and “\$100.00” respectively;
- (j) by deleting for paragraph (14); and
- (k) in paragraph (16), by substituting for the words “\$50.00” the words “\$100.00”.

### **Amendment of Second Schedule**

128. Second Schedule of the principle By-Laws is amended—

(a) In Form A—

(i) in the heading form, by inserting before the word “BUILDINGS” the word “DEMOLITION/”; and

(ii) by inserting before the word “3(1)(c)” the word “2B(2),”; and

(b) In Form B, by substituting for the words “22(1) and (2)” the words “2D and 22”.

### **Deletion of Fourth Schedule**

129. The principal By-Laws is amended by deleting the Fourth Schedule.

### **Amendment of Fifth Schedule**

130. Fifth Schedule of the principle By-Laws is amended—

(a) by substituting for paragraph (I) the following paragraph:

“I. Small residential

Private dwelling house detached or semidetached or terraced.”;

(b) in paragraph (II)—

(i) by substituting for the words “Hospital, school” the words “Hospitals, schools, colleges, libraries, nursing homes”; and

(ii) by inserting after the word “used” the words “for education or”;

(c) in paragraph (III), by inserting after the words “I and II” the words “, including hotels, hostels, dormitories, apartments, flats, old folks homes and orphanages.”;

(d) in paragraph (V), by substituting for the words “meaning thereby premises not being a shop but “ the words “shopping complexes, food courts, wet and dry markets, premises”; and

(e) in paragraph (VII), by inserting after the words “I to VI” the words “, including convention centres, museums, art galleries, cinemas, theatres, auditoriums, places of worship, transportation passenger terminals”.

## Substitution of Seventh Schedule

131. The principle By-Laws is amended by substituting for the Seventh Schedule with the following schedule:

SEVENTH SCHEDULE  
MAXIMUM TRAVEL DISTANCES  
(By-Laws 165(4), 166(2), 167(1), 170(b))

Purpose Group	Limit when alternative exits are available		
	(1) *Dead-End Limit (metre)	(2) Unsprinklered	(3) (metre) Sprinklered
<b>I. Small Residential</b> .....	NR	NR	NR
<b>II. Institutional</b>			
Hospitals, Nursing Homes, etc .....	15	30	45
School .....	15	45	75
Open Plan .....	NR	30	45
Flexible Plan .....	NR	45	60
<b>III. Kediamaan lain</b>			
Hotels .....	15	30	45
Flats .....	20	30	75
Dormitories .....	15	45	75
<b>IV. Office</b> .....	15	45	75
<b>V. Shops</b> .....	15	45	60
<b>VI. Factory</b> .....			
General and Special Purpose .....	15	30	60
High Hazard .....	0	22	35
Open structures .....	NR	NR	NR
<b>VII. Place of Assembly</b> .....	15	45	60
<b>VIII. Storage and general</b>			
Low and Ordinary hazard.....	15	30	60
High Hazard .....	10	20	35
Parking Garages .....	15	45	60
Aircraft Hangars (Ground Floor) .....	15	30+	45+
Aircraft Hangars (Mezzanine Floor) .....	15	20	20

NR– No requirements or not applicable.

\* The dead-end limit shall be the distance to a storey exit or to a point where alternative means of escape is available provided that the total travel distance shall not exceed the limits under (2).

+ Refers only to aircraft hangars. In any building used for aircraft assembly or other occupancy requiring undivided floor areas so large that the distances from points within area to the nearest outside walls where exit doors could be provided are in excess of 45 metres requirements for distance to exits may be satisfied by providing stairs leading to exit tunnels or to overhead passageways. In cases where such arrangements are not practicable other arrangements for

one-storey buildings with distances in excess of the maximum, travel distances of not more than 30 metres or 45 metres in building protected by a complete automatic sprinkler system, may be permitted if complete automatic sprinkler protection is provided and if the height of ceilings, ceiling curtain boards and roof ventilation is such as to minimise the possibility that employees will be overtaken by the spread of fire or smoke within of 1.8 metres of the floor level before they have time to reach exits provided however that in no case may the distance to travel to reach the nearest exit exceed 120 metres.

In an open plan the direct distance shall be two-thirds of the travel distance.

## SEVENTH SCHEDULE

### CALCULATION OF OCCUPANT LOAD AND CAPACITY OF EXITS

(By-Laws 167(2), 168(2), 170(c), 171(c), 175)

Purpose Group	Occupant load square metre per	CAPACITY EXITS <i>No. of persons per unit-Exit Width</i>					
		<i>Doors outside</i>	<i>Horizon toal Exit</i>	<i>Ramp Main Exit</i>	<i>Ramps Sec. Exit</i>	<i>Escalator</i>	<i>Stairs</i>
<b>I. Small Residential</b> .....	NR	NR	NR	NR	NR	NR	NR
<b>II. Institutional</b> .....		100	100	100	60	-	60
Class-room Area .....	2 net						
Workshop and Vocational areas .....	4.5 net						
Day Nurseries with sleeping facilities .....	3.5 net						
Hospital .....	-	30	30	30	30	-	15
Sleeping Department .....	12 gross						
In-patient Department .....	24 gross						
<b>III. Other Residential</b> .....	20 gross	50	50	50	50	45	30
Flat .....	24 gross						
General public area in Hotels (Bedroom in hotels at 2 persons per room) .....	24 gross						
<b>IV. Shops</b> .....	10 gross (4)	100	100	100	60	60	60
<b>V. Kedai</b> .....	-	100	100	100	60	60	60
Street floor and sale basement .....	3 gross (4)						
Other floors .....	6 gross (4)						
Storage and shipping .....	10 gross						
<b>VI. Factory</b> .....	10 gross	100	100	100	60	60	60

Purpose Group	Occupant load square metre per	CAPACITY EXITS <i>No. of persons per unit–Exit Width</i>					
		<i>Doors outside</i>	<i>Horizon toal Exit</i>	<i>Ramp Main Exit</i>	<i>Ramps Sec. Exit</i>	<i>Escalator</i>	<i>Stairs</i>
<b>VII. Place of Assembly</b>	1.5 net	100	100	100	75	75	75
..... Areas of concentrated use without fixed seating .....	0.7 net						
Standing space .....	0.3 net						

NR–No requirements or not applicable.

Exits are measured in units of 550 milimetre width.

The width of an access to exit should be at least 700 milimetres.

The capacity in number of persons of a unit of exit width varies from 30 persons per unit of exit width for hospitals to 100 persons per unit of exit width for officer buildings, assembly buildings for travel in horizontal direction.

For travel in an inclined direction–22 persons per unit of exit width in hospitals to 75 persons per unit of exit width in places of assembly.

Main exit 50% of the total required exit width.

In determining the units of exit width for an exit doorway, only the clear width of the doorway when the door is in the open position is to be measured.

Excluding any areas occupied by staircases, lifts, sanitary accommodation and any other space occupied by machinery for any lift, air-conditioning system or similar service provided for the building.

### **Amendment of Eight Schedule**

132. Eight Schedule of the principle By-Laws is amended in Pitched Roofs Covered With Slates or Tiles by deleting for Part II until Part IV.

### **Amendment of Ninth Schedule**

133. Ninth Schedule of the principle By-Laws is amended—

- (a) by substituting for the Schedule to the “LIMITS OF COMPARTMENT AND MINIMUM PERIODS OF FIRE RESISTANCE FOR ELEMENTS OF STRUCTURE” the following schedule:

#### NINTH SCHEDULE

#### LIMITS OF COMPARTMENTS AND MINIMUM PERIODS OF FIRE RESISTANCE FOR ELEMENTS OF STRUCTURE

(By-Laws 143(3), 147, 158(1), 162, 213, 216(2))  
*(Minimum periods of fire resistance)*

In this table—

“cubic capacity” means the cubic capacity of the building or if the building is divided into compartments, the compartment of which the element of structure forms part;

“floor area” means the floor area of each storey in building or, if the building is divided into compartments, of each storey in the compartment of which the element of structure forms part;

“height” has the meaning assigned to the expression by paragraph (2) of by-law 215;

“NL” means no limit applicable.

PART 1–BUILDINGS OTHER THAN SINGLE STOREY BUILDINGS

Purpose group		Maximum dimensions			Minimum period of fire resistance (in hours) for elements of structure (*) forming part of–	
		Height (in m)	Floor area (in m <sup>2</sup> )	Cubical Extent (in m <sup>3</sup> )	Ground storey or upper storey	Basement storey
(1)		(2)	(3)	(4)	(5)	(6)
I.	(Small Residential)					
	House having not more than 3-storey	NL	NL	NL	½	1(a)
	House having 4-storey	NL	250	NL	1(b)	1
	House having any number of storey	NL	NL	NL	1	1½
II.	(Institutional)	28 over 28	2000 2000	NL NL	1 1 ½	1½ 2
III.	(Other residential)					
	Building or part (†) having not more than two storeys	NL	500	NL	½	1
	Building or part (†) having 3 storeys	NL	250	NL	1(b)	1
	Building having any number of storeys	28	3000	8500	1	1 ½
	Building having any number of storeys	NL	2000	5500	1½	2

Purpose group  (1)		Maximum dimensions			Minimum period of fire resistance (in hours) for elements of structure <sup>(*)</sup> forming part of-	
		Height (in m)  (2)	Floor area (in m <sup>2</sup> )  (3)	Cubical Extent (in m <sup>3</sup> )  (4)	Ground storey or upper storey  (5)	Basement storey  (6)
IV.	(Office)	7.5	250	NL	½	1(a)
		7.5	500	NL	½	1
		15	NL	3500	1(b)	1
		28	5000	14000	1	1 ½
		NL	NL	NL	1½	2
V.	(Shops)	7.5	150	NL	½	1(a)
		7.5	500	NL	½	1
		15	NL	3500	1(b)	1
		28	1000	14000	1	2
		NL	2000	NL	2	4
VI.	(Factory)	7.5	250	NL	½	1(a)
		7.5	NL	1700	½	1
		15	NL	4250	1(b)	1
		28	NL	8500	1	2
		28	NL	28000	2	4
		over 28	2000	5500	2	4
VII.	(Places of assembly)	7.5	250	NL	½	1(a)
		7.5	500	NL	½	1
		15	NL	3500	1(b)	1
		28	5000	7000	1	1 ½
		NL	NL	7000	1 ½	2
VIII.	(Storage and general)	7.5	150	NL	½	1(a)
		7.5	300	NL	½	1
		15	NL	1700	1(b)	1
		15	NL	3500	1	2
		28	NL	7000	2	4
		28	NL	21000	4(c)	4
		over 28	1000	NL	4(c)	4



*Notes to Part 1*

For the purpose of paragraph (2) of by-law 142 the period of fire resistance to be taken as being relevant to an element of structure is the period included in column (5) or (6), whichever is appropriate, in the line of entries which specifies dimensions with all of which there is conformity or, if there are two or more such lines, in the topmost of those lines.

- (\*) A floor which is immediately over a basement storey shall be deemed to be an element of structures forming part of a basement storey.
- (†) The expression “part” means a part which is separated as described in paragraph (2) of by-law 215.
- (a) The period is half an hour for elements forming part of a basement storey which has an area not exceeding 50 m<sup>2</sup>.
- (b) This period is reduced to half an hour in respect of a floor which is not a compartment floor, except as to the beams which support the floor or any part of the floor which contributes to the structural support of a building as a whole.
- (c) No fire resistance is required if the elements form part of a basement storey which has an area not exceeding 50 m<sup>2</sup>/This period is reduced to 2-hours for open-sided buildings which are used solely for car parking.

PART 2–SINGLE STOREY BUILDINGS

Purpose Group (1)		Maximum dimensions (in m <sup>2</sup> ) (2)	Minimum period of fire resistance (in hours) for elements of structure (3)
I.	Small Residential	NL	½
II.	Institutional	3000	½
III.	Other Residential	3000	½
IV.	Office	3000	½
		NL	1
V.	Shops	2000	½
		3000	1
		NL	2
VI.	Factory	2000	½
		3000	1
		NL	2
VII.	Places of assembly	3000	½
		NL	1
VIII.	Storage and general	500	½
		1000	1
		3000	2
		NL	4(a)

Notes to Part 2

For the purpose of paragraph (2) of by-law 142, the period of fire resistance to be taken as being relevant to an element of structure in the period included in column (3) in the line of entries which specifies the floor area with which there is conformity or, if there are two or more such lines.

(a) This period is reduced to 2-hours for open-sided buildings which are used solely for car parking.”

(b) by substituting for Note to the Schedule of Suspended Ceilings the following notes:

“Notes:

- (1) References to classes are to classes as specified in by-law 204.
- (2) Where the space above a suspended ceiling is protected by an automatic sprinkler system it shall be exempted from the requirements for non-combustibility and surface spread of flame classification as specified in the above table provided the ceiling is not situated over an exit passageway, protected lobby or other required protected means of escape.”; dan

(c) in Part I of Schedule to the “NOTIONAL PERIODS OF FIRE RESISTANCE” in subparagraph B—

(i) in item 4, by deleting for the words “9 mm asbestos insulating board” and “1/2”;

(ii) by substituting for subitem 5(e) the following subitem:

“(e) 12.5 mm plasterboard—

unplastered

1/2

With gypsum plaster of thickness of 12.5 mm

1”; and

(iii) by deleting subitems 5(j) and (k)

**Amendment of Tenth Schedule**

129. Tenth Schedule of the principal By-Laws is amended—

(a) by substituting for Schedule to the “SCHEDULE OF TABLE OF REQUIREMENTS FOR FIRE DETECTION, FIRE ALARM AND FIRE EXTINGUISHMENT SYSTEMS” the following schedule:

TENTH SCHEDULE

TABLE OF REQUIREMENTS FOR FIRE DETECTION, FIRE ALARM AND FIRE EXTINGUISHMENT SYSTEMS

(By-law 225 (1), 238)

Occupancy Hazard	Extinguishing System	Detection and Fire Alarm Systems
	Note 2	Note 3
<b>I. SMALL RESIDENTIAL</b>		
(i) Private dwelling up to 2 storey		
(a) Terrace Type	(See Note 5)	-
(b) Semi Detached	(See Note 5)	-
(c) Detached	(See Note 5)	-
(ii) Private dwelling more than 2 storey	(See Note 5)	(See Note 6)

Occupancy Hazard	Extinguishing System Note 2	Detection and Fire Alarm Systems Note 3
<p>II. INSTITUTIONAL</p> <p>1. Educational Occupancies</p> <p>(i) Rooms or halls used for instructional purposes only.</p> <p>(a) Open corridor design</p> <p>(A) 2 storeys and below</p> <p>(B) 3 to 5 storeys</p> <p>(C) 6 storeys and above</p> <p>(b) Other designs</p> <p>(A) Two or more storeys</p> <p>(B) Less than 1,000 sq. m per floor</p> <p>(C) 1,000 sq. m to 2,000 sq. m per floor</p> <p>(D) Exceeding 2,000 sq. m per floor or more than 30 m height</p> <p>(ii) Canteen/kitchen detached</p> <p>(iii) Laboratories and Workshops (total floor area per block)</p> <p>(a) Low hazard Laboratories and workshops such as physics lab, electronics lab, computer lab and for metal work over 1,000 sq. m in floor area</p> <p>(b) High hazard laboratories and workshops such as chemical lab and for wood work</p> <p>(A) Less than 1,000 sq. m</p> <p>(B) 1001 to 2,000 sq. m</p> <p>(C) Exceeding 2,000 sq. m</p> <p>(iv) Library (total floor area)</p> <p>(a) Less than 500 sq. m</p> <p>(b) 501 sq. m to 1,000 sq. m</p> <p>(c) 1001 sq. m to 2,000 sq. m</p> <p>(d) Exceeding 2,000 sq. m</p>	<p>-</p> <p>A</p> <p>A</p> <p>-</p> <p>A</p> <p>A</p> <p>A &amp; B</p> <p>-</p> <p>A</p> <p>A &amp; B</p> <p>-</p> <p>A</p> <p>A</p> <p>A &amp; B</p> <p>-</p> <p>A</p> <p>A</p> <p>A &amp; B</p>	<p>-</p> <p>1</p> <p>1 &amp; 2</p> <p>-</p> <p>1</p> <p>1 &amp; 2</p> <p>1, 3, 4 &amp; 5</p> <p>-</p> <p>1 &amp; 2</p> <p>-</p> <p>1 &amp; 2</p> <p>1 &amp; 3</p> <p>-</p> <p>- 1</p> <p>1 &amp; 2</p> <p>1, 3, 4 &amp; 5</p>

Occupancy Hazard	Extinguishing System	Detection and Fire Alarm Systems
	Note 2	Note 3
(v) Vocational School (total floor area)		
(a) Low hazard workshops such as for metal work over 1,000 sq. m in floor area	A	1 & 2
(b) High hazard laboratories and workshops such as for wood work		
(A) Less than 1,000 sq. m	-	-
(B) 1001 to 2,000 sq. m	A	1 & 2
(C) Exceeding 2,000 sq. m	A & B	1 & 3
(vi) Multi-purpose hall (total floor area)		
(a) Single storey and less than 2,000 sq. m	-	-
(b) 2 storey and above or exceeding 2,000 sq. m	A	1
(vii) Buildings with Central Air-conditioning (total floor area)		
(a) Less than 1,000 sq. m	-	-
(b) 1,001 sq. m to 2,000 sq. m	A	1 & 2
(c) exceeding 2,000 sq. m	A & B	1, 3, 4 & 5
(viii) Educational Institutions in office complexes and shopping complexes	To be considered as part of overall risk in the complex.	
2. HOSPITALS AND NURSING HOMES (Total floor area)		
(i) Clinic–day care		
(a) 1,001 sq. m. to 2,000 sq. m	A	1
(b) 1,001 sq. m. to 2,000 sq. m	A	1 & 2
(c) above 2,000 sq. m	A & B	1, 3, 4 & 5
(ii) In-patient Treatment		
(a) Part of office or shopping complex	To be considered as part of overall risk with special requirements for emergency lighting stretcher lifts.	

Occupancy Hazard	Extinguishing System Note 2	Detection and Fire Alarm Systems Note 3
(b) Not exceeding 250 sq. m per floor (A) Single storey (B) 2 storeys (C) 3 or 5 storeys (D) 6 storeys and over (c) Exceeding 250 sq. m per floor (A) Single storey (B) 2 storeys (C) 3 or 4 storeys (D) 5 storeys and over	- - A A & B - A A A & B	- 1 1 & 2 1, 3, 4 & 5 - 1 1 & 3 1, 3, 4 & 5
<b>NOTE:</b> (i) Stretcher lift facilities to be provided for buildings above 4 storeys. (ii) All fire alarm systems within wards shall be of the signal indicator type.		
<b>III. OTHER RESIDENTIAL</b> 1. Hotels (i) Open corridor_design with open staircase with extended lobby or tower staircase (a) 1 to 3 storeys (A) 50 rooms or less per block (B) More than 50 rooms per block (b) 4 or 5 storeys (A) 20 rooms or less per block (B) 21 to 50 rooms per block (C) 51 rooms and over per block (c) 6 to 10 storeys (A) 50 rooms or less per block (B) 51 rooms and over per block (d) 11 storeys and over	- A - A A A A & B A & B	(See Note 7) (See Note 7) (See Note 7) (See Note 7) 1 & 2 1 & 2 1, 3, 4 & 5 1, 3, 4 & 5

Occupancy Hazard	Extinguishing System	Detection and Fire Alarm Systems
	Note 2	Note 3
(ii) Other Designs		
(a) Less than 10 rooms per block	-	(See Note 7)
(b) 11 rooms to 20 rooms per block	-	1 & 2
(c) 21 rooms to 50 rooms per block	A	1 & 2
(d) 51 rooms and over per block		
(A) 3 storeys and below	A	1 & 2
(B) 4 storeys and above or exceeding 18 m height	A & B	1, 3, 4 & 5
(iii) Hotel above shops or office occupancies	But not less than that required for over all occupancy risk or 1 & 2 above	
2. Hostels, Dormitories, Old Folk Homes and Ophanages		
(i) (a) Single storey	-	-
(b) 2 or 3 storeys	A	1
(c) 4 or 5 storeys		
(A) Less than 250 sq. m per floor	A	1, (See Note 7)
(B) More than 250 sq. m per floor	A	1 & 2
(d) 6 to 10 storeys	A	1 & 2
(e) 11 storeys and over	A & B	1, 3, 4 & 5
(ii) Open corridor design 11 storeys and over and for other designs 6 storeys and over	A & B	1, 3, 4 & 5
NOTE:		
Hotels at locations that cannot be reached within reasonable time or not accessible to required type and number of fire appliances shall be required to provide higher standard of protection as required by D.G.F.R.		
3. Apartments and Flats		
(i) Apartments/flats 5 storeys and below	(See Note 5)	-
(ii) Open corridor design	-	-
(a) Apartments/flats 6 storeys to 10 storeys or less than 30 m height	A, (See Note 5)	1



Occupancy Hazard	Extinguishing System	Detection and Fire Alarm Systems
	Note 2	Note 3
(ii) 750 to 1,000 sq. m	(See Note 8)	2
(iii) 1,001 to 2,000 sq. m	A	1 & 2
(iv) More than 2,000 sq. m	A & B	
4. 3 storeys and above (total floor area)		
(i) Less than 1,000 sq. m	A	1
(ii) 1,000 – 3,000 sq. m	A	1
(iii) 3,000 sq. m and over	A & B	1, 3 & 5
5. Hawker Centers, Food Courts, Wet and Dry Markets		
(i) Detached building less than 2,000 sq. m with open structure design and naturally ventilated	-	-
(ii) 2,000 sq. m and over	A	1 & 2
6. Combined shop and hotel occupancy and combined office and shop occupancies	Gross area calculated against the highest risk requirement.	
<b>VI. FACTORY</b>		
1. Single Storeys detached or terrace units		
(i) Less than 750 sq. m	-	-
(ii) 750 to 1,000 sq. m	(See Note 8)	1
(iii) 1001 to 2,000 sq. m	A	1 & 2
(iv) More than 2,000 sq. m	A & B	1, 3 & 5
2. Open Structure Design		
(i) Steel or metal fabrication works, engineering or metal works or similar low fire risk establishments	-	-
(ii) Sawmill	A & D	1
(iii) Steel mills	A & D	1
3. Two Storeys detached or terrace units: each floor built as separate compartment single or terrace type construction		
(i) Each floor area less than 500 sq. m	(See Note 8)	1
(ii) Each floor area 500 – 1,000 sq. m	A	1 & 2
(iii) Exceeding 1,000 sq. m per floor area	A & B	1, 3 & 5



Occupancy Hazard	Extinguishing System Note 2	Detection and Fire Alarm Systems Note 3
<p>4. Flatted Factories Block</p> <p>(i) 2 storeys and over</p> <p>(a) Less than 500 sq. m per compartment</p> <p>(b) 500 – 1,000 sq. m per compartment</p> <p>(c) Exceeding 1,000 sq. m per compartment</p> <p>(d) Compartment Exceeding 7,000 cu. m</p> <p>(ii) Three storeys and over</p> <p>(a) With compartment exceeding 1,000 sq. m</p> <p>(iii) Vehicle Assembly and similar Plants</p> <p>(a) Less than 1,000 sq. m</p> <p>(b) 1001 to 2,000 sq. m</p> <p>(c) 2001 to 5,000 sq. m</p> <p>(d) Exceeding 5,000 sq. m</p> <p>5. Special hazards</p> <p>(i) Factory complexes such as palm oil mill complex, palm oil refinery, sugar mills, paper mills, paint shops, cement works</p> <p>(ii) (a) Buildings with wet processes</p> <p>(b) Building with hazardous processes</p>	<p>(See Note 8)</p> <p>A</p> <p>A &amp; B</p> <p>-</p> <p>A &amp; D</p> <p>A, B &amp; D</p> <p>-</p> <p>(See Note 8)</p> <p>A &amp; D</p> <p>AB &amp; D</p> <p>A &amp; D</p> <p>A</p> <p>A, B, C or D</p>	<p>1</p> <p>1</p> <p>1, 3, 4 &amp; 5</p> <p>-</p> <p>1 &amp; 2</p> <p>1, 3, 4 &amp; 5</p> <p>-</p> <p>-</p> <p>1</p> <p>1, 2, 3 &amp; 5</p> <p>1</p> <p>1</p> <p>1, 2, 3, 4, 5</p>
<p>NOTE:</p> <p>1. Factories in operation after hours of darkness shall be required to provide emergency light as required by the D.G.F.R.</p> <p>2. Special risks or hazardous processes or storage shall be required to provide fire protection requirements as required by D.G.F.R.</p>		
<p>VII. PLACE OF ASSEMBLY</p> <p>1. Place of assembly below level of exit discharge exceeding 500 sq. m (Total floor area)</p> <p>2. Convention Center, Community Centers, Private Clubs, Exhibition Centers, Museums And Art Galleries (total floor area)</p> <p>(i) Single storey not exceeding 1,000 sq. m</p>	<p>A &amp; B</p> <p>-</p>	<p>1</p> <p>-</p>

Occupancy Hazard	Extinguishing System	Detection and Fire Alarm Systems
	Note 2	Note 3
(ii) Single storey 1,001 sq. m to 2,000 sq. m	A	1
(iii) 2 storey and above or exceeding 2,000 sq. m	A & B	1, 3, 4 & 5
3. Theatres, Cinemas, Concert Halls, Auditoriums (total floor area)		
(i) Single storey or not exceeding 1,000 sq. m	-	1 & 2
(ii) 2 storeys and above or exceeding 1,000 sq. m	A & B	1, 3, 4 & 5
4. Amusement centers (total floor area)		
(i) Single storey or not exceeding 1,000 sq. m	A	1 & 2
(ii) 2 storeys and above or exceeding 1,000 sq. m	A & B	1 & 3
5. Bus terminals, train stations, airports (total floor area)		
(i) Single storey or not exceeding 1,000 sq. m	-	1
(ii) 2 storeys 1000 sq. m to 2,000 sq. m	A	1 & 2
(iii) 3 storeys and above or exceeding 2,000 sq. m	A & B	1, 3, 4 & 5
6. Place of worship		
Place of assembly used purely for religious purposes	-	-
<b>VIII. STORAGE AND GENERAL</b>		
1. Car parks		
(i) Open structure car-parks above ground		
(a) Single storey or less than 750 sq. m	-	-
(b) 2 storeys and above or more than 750 sq. m per floor	A	1
(ii) Underground car parks		
(a) Less than 2000 sq. m (total floor area)	A	1
(b) 2000 sq. m and above atas (total floor area)	A & B	1, 3, 4 & 5
(iii) Automated multi level car parks	A & B	1 & 3

Occupancy Hazard	Extinguishing System Note 2	Detection and Fire Alarm Systems Note 3
2. Warehouse and storage of non-combustible such as clay and bleaching earth <ul style="list-style-type: none"> <li>(i) Single storeys and less than 2,000 sq. m</li> <li>(ii) 2 storeys and above or more than 2,000 sq. m</li> </ul> 3 Warehouse and Storage of combustible products <ul style="list-style-type: none"> <li>(i) Single storeys (total floor area)               <ul style="list-style-type: none"> <li>(a) Open sided exceeding 1,000 sq. m</li> <li>(b) Less than 250 sq. m</li> <li>(c) 250 – 500 sq. m</li> <li>(d) 501 – 1,000 sq. m and less than 7,000 cu. m</li> <li>(e) More than 1,000 sq. m or 7,000 cu. m</li> </ul> </li> <li>(ii) Two storeys and over (total floor area)               <ul style="list-style-type: none"> <li>(a) Less than 1000 sq. m and less than 7000 cu. m</li> <li>(b) Exceeding 1,000 sq. m and over or more than 7,000 cu. m</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>-</li> <li>A</li> <li>A</li> <li>-</li> <li>(See Note 5)</li> <li>A</li> <li>A &amp; B</li> <li>A</li> <li>A &amp; B</li> </ul>	<ul style="list-style-type: none"> <li>-</li> <li>1</li> <li>1</li> <li>-</li> <li>1</li> <li>1 &amp; 2</li> <li>1, 3 &amp; 5</li> <li>-</li> <li>1, 3 &amp; 5</li> </ul>

NOTE:

Open Structure

- (1) Total surface area of openings is to be no less than 40% of the total perimeter wall area enclosing the floor or compartment.
- (2) The opening(s) is to be shaped and located in such a way that total length in plan of the opening(s) is to be no less than 50% of the perimeter of the floor or compartment.

Open Corridor

- (1) Total surface area of openings is to be no less than 25% of the total perimeter wall area enclosing the balcony.
- (2) The opening(s) is to be shaped and located in such a way that total length in plan of the opening(s) is to be no less than 50% of the perimeter of the balcony.

“Openings” is to be opened to outside, unenclosed space or permitted airwells. Any individual opening having surface area less than 600 mm<sup>2</sup> or area width of opening is less than 25 mm is not to be regarded as an opening for the purpose.

NOTE 1

The hazardous areas and processes within any building referred to in Group VI and VIII are the following areas:

- (a) Boiler Room and Associated Fuel Storage spaces.
- (b) Laundries.
- (c) Repair Shops.
- (d) Rooms or spaces used for storage of materials in quantities deemed hazardous.
- (e) Kitchen.
- (f) Soiled Linen Room.
- (g) Transformer Rooms and Switch Rooms.
- (h) Plant Room.
- (i) Flammable liquid processing or refining operations.
- (j) Indoor Storage of flammable liquids.
- (k) Chemical plants, solvent extraction plants, distillation plants, refineries.
- (l) Process equipment, pump rooms, open tanks, dip-tanks, mixing-tanks.

NOTE 2:

The letters in the second column of this Schedule refer to the types of fixed extinguishing system, as follows:

- A –Hose Reel System.
- B –Sprinkler System.
- C –Gaseous Extinguishing System.
- D –Pressurized Fire Hydrant.

NOTE 3:

The figures in the third column of this Schedule refer to the types of fire alarm and fire detection systems as follows:

- 1. Automatic Fire Detectors SystemManual Electric Fire Alarm System.
- 2. Manual Electric Fire Alarm SystemAutomatic Fire Detectors System.
- 3. Signal Indicator Alarm SystemCentralized Monitoring System.
- 4. Manual Alarm SystemPublic Address System.
- 5. Fire Command Center

NOTE 4:

For the purpose of this Schedule, measurement of heights shall be taken from the level of the highest point of fire appliance access to the highest habitable floor level.

NOTE 5:

Portable fire extinguishers are to be provided for private dwellings.

NOTE 6:

Smoke detector of the self contained type is to be provided at the top of the staircase.

NOTE 7:

Smoke detector of the self contained type is to be provided in bedrooms.

NOTE 8:

Trolley type 25 kg fire extinguishers to be provided.

(b) by deleting for Form A and Form B.

Made 7 December 2012  
[P.U. Sel. Am 0283 Jld. 4]

SULIMAN BIN ABD RAHMAN  
*Clerk*  
*State Executive Council*  
*Selangor*

Hakcipta Pencetak (H)

PERCETAKAN NASIONAL MALAYSIA BERHAD

Semua Hak Terpelihara. Tiada mana-mana bahagian jua daripada penerbitan ini boleh diterbitkan semula atau disimpan di dalam bentuk yang boleh diperolehi semula atau disiarkan dalam sebarang bentuk dengan apa jua cara elektronik, mekanikal, fotokopi, rakaman dan/ atau sebaliknya tanpa mendapat izin daripada Percetakan Nasional Malaysia Berhad (Pencetak kepada Kerajaan Malaysia yang dilantik).



DICETAK OLEH  
PERCETAKAN NASIONAL MALAYSIA BERHAD,  
KUALA LUMPUR  
BAGI PIHAK DAN DENGAN PERINTAH KERAJAAN MALAYSIA