



# **LAWS OF SARAWAK**

ONLINE VERSION OF UPDATED TEXT OF REPRINT

## **Chapter 8**

### **BUILDINGS ORDINANCE, 1994**

*Incorporating all amendments up to 31st May, 2026*

PREPARED AND COMPILED BY  
STATE ATTORNEY-GENERAL'S CHAMBERS  
**2026**

## **BUILDINGS ORDINANCE, 1994**

|                                         |        |                 |
|-----------------------------------------|--------|-----------------|
| Date Passed by Dewan Undangan<br>Negeri | ... .. | 26th May, 1994  |
| Date of Assent                          | ... .. | 3rd June, 1994  |
| Date of Publication in <i>Gazette</i>   | ...    | 30th June, 1994 |

1st Reprint in 2007

Sarawak LawNet

**LAWS OF SARAWAK****Chapter 8****BUILDINGS ORDINANCE, 1994**

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## LAWS OF SARAWAK

### Chapter 8

#### BUILDINGS ORDINANCE, 1994

*An Ordinance to amend and consolidate and to make further provisions concerning the laws relating to building in the State, and for purposes connected therewith.*

*[1st October 1994]*

*[See 1st Schedule, p. 92 also]*

Enacted by the Legislature of Sarawak—

#### PART I

#### PRELIMINARY

##### **Short title, commencement and application**

1.—(1) This Ordinance may be cited as the Buildings Ordinance, 1994, and shall come into force, in the areas specified in the First Schedule, on such date as the Minister may, by notification in the *Gazette*, appoint, and the Minister may appoint different dates for the coming into force of different parts or provisions of this Ordinance.

*[Ins. Cap. A52, Sub. Cap. A224.]*

(1A) *[Deleted by Cap. A224.]*

(2) The provisions of this Ordinance shall apply to any building other than those specified under subsection (3).

(3) This Ordinance shall not apply to—

(a) any building of the class referred to in the Second Schedule;

(b) any movable dwelling (including any tent, van or other conveyance, whether on wheels or not, and any shed or similar structure) if such dwelling is used only temporarily or intermittently for human habitation;

(c) any building or part thereof, which is, with the approval of the local authority, used for the purpose of such experiment or research as may be approved by that local authority;

(d) subject to section 10, any existing building which does not fall within the classification specified in section 66, so long as no extension or alteration or change in the use thereof is made thereto and so long as the building does not become a dangerous building; or

(e) any building or class of building or building works exempted by the Yang di-Pertua Negeri under section 63.

### **Interpretation**

2.—(1) In this Ordinance—

“advertisement hoarding” *[Deleted by Cap. A224.]*;

“aggregate” *[Deleted by Cap. A224.]*;

“air-well” *[Deleted by Cap. A224.]*;

“alterations” *[Deleted by Cap. A224.]*;

“approval plan” *[Deleted by Cap. A224.]*;

“accredited checker” means a qualified person registered as an accredited checker under this Ordinance;

*[Ins. Cap. A224.]*

“approved” means approved by any person or body whose approval is required by this Ordinance or any regulations made hereunder;

“arcade” includes verandah;

“architect” means any person who is registered as an architect under any written law for the time being in force in the State relating to the registration of architects and who under that law is allowed to practise or carry on business as an architect;

“Board” means the Sarawak Building Board established under Part IA;

*[Ins. Cap. A224.]*

“ASHRAE” *[Deleted by Cap. A224.]*;

“balcony” *[Deleted by Cap. A224.]*;

“base” *[Deleted by Cap. A224.]*;

“basement” *[Deleted by Cap. A224.]*;

“building” includes any house, hut, shed or roofed enclosure, whether used for the purpose of human habitation or otherwise, and also any wall, fence, platform, septic tank, underground tank, staging, gate, post, pillar, paling, frame, hoarding, slip, dock, wharf, pier, jetty, landing-stage, swimming pool, bridge, railway lines, transmission lines or tower, cables, rediffusion lines, overhead or underground pipelines, or any other structure, support or foundation;

*[Am. Cap. A52.]*

“building plans” means plans that include site plan, key plans, floor plans, sections and elevations as set out specifically in any regulations made under the Ordinance;

*[Ins. Cap. A224.]*

“building line” *[Deleted by Cap. A224.]*;

“business premises” *[Deleted by Cap. A224.]*;

\*“BS” *[Deleted by Cap. A224.]*;

\*“BSCP” *[Deleted by Cap. A224.]*;

“ceiling” means the covering to the underside of floor joists or ceiling joists or floor slabs excluding in all cases any supporting beams, and where no such covering exists means the underside of floor joists or roof cellars or ties excluding any supporting beams;

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\*The British Standards and Code of Practice referred to in this Ordinance refer to the latest current edition. In the event that a new BS or Code of Practice is being issued, which replaces the existing BS or Code of Practice completely, a time frame of at least two years from the date of publication of the document will be allowed for the current BS or Code of Practice to be used before switching completely to the new standard.

“Chief Inspector of Buildings” means the person appointed under section 27A to advise the Government on the safety of buildings and to assist local authorities on the exercise of their powers under this Ordinance, and includes a Deputy Chief Inspector of Buildings;

*[Ins. Cap. A52.]*

“column” *[Deleted by Cap. A224.]*;

*[Sub. Cap. A52.]*

“Competent planning authority” means the State Planning Authority established under Part X of the Land Code ***[Cap. 81 (1958 Ed.)]*** or such person or body to whom the powers and functions of that Authority have been delegated;

“Court” means a Magistrate Court of competent jurisdiction;

“dead load” *[Deleted by Cap. A224.]*;

“depth” *[Deleted by Cap. A224.]*;

“detached building” *[Deleted by Cap. A224.]*;

“developer” means any person, body of persons, company, firm or society who or which engages in or carries on or undertakes the business of development of buildings or providing moneys for development or purchasing or partly developing and providing moneys for purchasing buildings;

“dwelling house” includes a building or tenement wholly or principally used, constructed or adapted for use for human habitation;

“earthworks” includes any act of clearing of vegetation or forest area, excavation, levelling, filling with any material on any land, or the removal or transport of rock materials therefrom, or any act (including felling of trees, on any land, piling and foundation works carried out during construction) which alters in any manner the topography, contour, level or features of any land for the purpose of building development;

*[Inst. Cap. A52, Am. Cap. A224.]*

“engineer” means a person who is registered as a professional engineer under any written law for the time being in force in the State relating to the registration of engineers and who under the law is allowed to practise or carry on the business of a professional engineer;

“fire authority” means the officer in charge of the relevant Fire and Rescue Department or any officer authorised by him in that behalf;

*[Ins. Cap. A224.]*

“external wall” *[Deleted by Cap. A224.]*;

“factory” *[Deleted by Cap. A224.]*;

“fire wall” *[Deleted by Cap. A224.]*;

“flat” *[Deleted by Cap. A224.]*;

“flat roof” *[Deleted by Cap. A224.]*;

“flood level” *[Deleted by Cap. A224.]*;

“floor” includes any horizontal platform forming the surface of any storey and any joist, board, timber, stone, concrete, steel or other substance connected with or forming part of such platform;

“footing” *[Deleted by Cap. A224.]*;

“footway” includes footpaths or verandah-ways at the sides of streets;

“foundation” means a system or arrangement of foundation units as footing, raft or pile through which loads from a building or structure are transferred to the supporting soil or rock;

“garage” *[Deleted by Cap. A224.]*;

“godown” *[Deleted by Cap. A224.]*;

“ground storey” means the lowest storey of a building below ground level to which there is an entrance from the outside on or above the level of the ground at the front of the building;

*[Am. Cap. A224.]*

“green building” means a building that is certified as a building that is environmentally responsible throughout its entire life cycle from planning to demolition;

“green building certification body” means a body that is registered with the Board under this Ordinance;

“green building practitioner” means personnel registered with the Board under this Ordinance;

“green building rating tools” mean the tools used for rating of green buildings;

*[Ins. Cap. A224.]*

“habitable room” *[Deleted by Cap. A224.]*;

“hardwood timber” *[Deleted by Cap. A224.]*;

“headroom” *[Deleted by Cap. A224.]*;

“height”, in relation to—

(a) a room means the vertical distance measured between the finished floor level and the underside of the ceiling excluding the thickness of the plaster;

(b) any storey means the vertical distance measured between the upper surface of its floor to the upper surface of the floor immediately above it;

(c) a wall means the vertical distance measured from the base of the wall to its highest part or, in the case of a gable, to half the height of the gable;

“hospital” *[Deleted by Cap. A224.]*;

“hotel” *[Deleted by Cap. A224.]*;

“house” includes dwelling house, warehouse, office, counting-house, shop, school, and any other building in which persons are employed;

“imposed load” *[Deleted by Cap. A224.]*;

“lateral support” *[Deleted by Cap. A224.]*;

“lintel” *[Deleted by Cap. A224.]*;

“load bearing” *[Deleted by Cap. A224.]*;

“local authority” means—

(a) in respect of any local authority area, a local authority constituted under the Local Authorities Ordinance, 1996 [**Cap. 20**] for such area;

(b) in relation to the Bintulu District, the Bintulu Development Authority established under the Lembaga Kemajuan Bintulu (Bintulu Development Authority) Ordinance, 1978 [**Ord. No. 1/78**];

(c) in relation to the City of Kuching North, the Commission of the City of Kuching North appointed under section 4(2) of the City of Kuching North Ordinance, 1988 [**Cap. 49**]; or

(d) in relation to the City of Kuching South, the Council of the City of Kuching deemed established under section 3 of the Local Authorities Ordinance, 1996 [**Cap. 20**];

“low lying land” [*Deleted by Cap. A224.*];

“maisonette” [*Deleted by Cap. A224.*];

“mesh” [*Deleted by Cap. A224.*];

“mezzanine floor” [*Deleted by Cap. A224.*];

“Minister”, unless the provisions of this Ordinance stipulate otherwise, shall mean the Minister for the time being having responsibilities over local authorities in Sarawak;

“MS” [*Deleted by Cap. A224.*];

“MSCP” [*Deleted by Cap. A224.*];

“nuisance” means any act, omission or thing occasioning or likely to occasion injury, annoyance, offence, harm, danger or damage to the sense of sight, smell or hearing, or which is or likely to be injurious or dangerous to health or property;

“occupation permit, temporary occupation permit and partial occupation permit” mean such permits given or granted under the Ordinance or any regulations made hereunder;

[*Inst. Cap. A52, Am. Cap. A224.*]

“occupier” means the person in actual occupation of the land or building in respect of which the word is used, or having the charge, management or control thereof either on his own account or as agent of another person, but does not include a lodger;

“Ordinance” includes any subsidiary legislation made thereunder;

*[Am. Cap. A224.]*

“out-building” *[Deleted by Cap. A224.]*;

“owner”—

(a) in relation to any land or building, means the registered proprietor of the land as defined in the Land Code *[Cap. 81 (1958 Ed.)]* and, if in the opinion of the local authority the registered proprietor of the land cannot be traced, the person for the time being receiving the rent of the premises in connection with which the word is used whether on his own account or as agent or trustee for any other person or as receiver or who would receive the same if such premises were let to a tenant and for the purpose of section 10 shall include the occupier of the building; and

*[Am. Cap. A224.]*

(b) in the case of subdivided buildings and subdivided land, includes the developer, joint management body, management corporation and any subsidiary proprietor: the expressions “management corporation” and “subsidiary proprietor” shall have the meanings assigned to them in the Strata (Subsidiary Titles) Ordinance, 2019 *[Cap. 75]*;

*[Am. Cap. A224.]*

“panel wall” *[Deleted by Cap. A224.]*;

“partition” means any internal wall not being a party or an external wall;

“party wall” means a wall forming part of a building and used or constructed to be used for separation of adjoining buildings belonging to different owners or occupied or



constructed or adapted to be occupied by different persons either constructed over or abutting a common boundary;

“pitched roof” *[Deleted by Cap. A224.]*;

“a place of public resort” *[Deleted by Cap. A224.]*;

“premises” includes messuages, houses, buildings, lands, tenements, easements and hereditaments of any tenure, whether open or enclosed, whether built on or not, whether public or private, and whether maintained or not under statutory authority;

“prestressed concrete” *[Deleted by Cap. A224.]*;

“private connection pipe” shall have the same meaning as assigned to it under section 2 of the Sewerage Services Act 1993 *[Act 508]*;

“public street” means any street which the public has a right of way repaired or maintained by the local authority or any other government agency or any street which the land has been transferred to or has become vested in the local authority or other government agency;

*[Ins. Cap. A224.]*

“qualified person” includes any architect, building draughtsman and engineer, registered under the respective professional regulatory law and registered with the Board under this Ordinance;

*[Sub. Cap. A224]*

“Registrar of Green Building” means a person appointed under section 24C;

*[Ins. Cap. A224.]*

“registered building draughtsman”, for the purpose of this Ordinance, means any building draughtsman who is registered under Part V of the Architects Act 1967 *[Act 117]*;

“residential building” means a building or part thereof designed, adapted or used for human habitation;

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“rock materials” shall have the same meaning assigned to that expression by the Land Code **[Cap. 81 (1958 Ed)]**;

*[Ins. Cap. A52.]*

“room” means any portion of a building enclosed by walls or partitions;

“school” *[Deleted by Cap. A224.]*;

“self-closing door” *[Deleted by Cap. A224.]*;

“semi-detached building” *[Deleted by Cap. A224.]*;

“septic tank” shall have the same meaning as assigned to it under section 2 of the Sewerage Systems and Services Ordinance, 2005 **[Cap. 63]**;

*[Ins. Cap. A224]*

“sewer” shall have the same meaning as assigned to it under section 2 of the Sewerage Systems and Services Ordinance, 2005 **[Cap. 63]**;

*[Am. Cap. A224]*

“sewerage system” shall have the same meaning as assigned to it under section 2 of the Sewerage Systems and Services Ordinance, 2005 **[Cap. 63]**;

*[Am. Cap. A224]*

“shophouse” *[Deleted by Cap. A224.]*;

“SIRIM” *[Deleted by Cap. A224.]*;

“sky-sign” means any erection consisting of a frame, hoarding, board, bar, pillar, post, wire or any combination of such things, or any erection of a like nature, or any visible object which floats or is kept in position by wire or other flexible attachment, displayed for the purposes of trade or professional advertisement in such a position as to be conspicuously visible against the sky above the general level of the roofs or surrounding buildings from any street or public place;

“slope” means a pitch of land surface or rock whether built or exists naturally including any erection which resists forces and moments of the slope;

*[Ins. Cap. A224]*

“smoke stop door” *[Deleted by Cap. A224.]*;

“storey” means the space between the upper surface of every floor and the surface of the floor next above it, or if there be no such floor then the underside of the tie or collar beam of the roof or other covering or if there be neither tie nor collar beam then the level of half the verticle height of the underside of the rafters or other support of the roof;

“street” includes any road, square, footway or passage, service road, whether a thorough-fare or not, over which the public have a right of way, and also the way over any bridge, and also includes any road, back-lane, footway or passage, open court or open alley, used or intended to be used as a means of access to two or more holdings, whether the public have a right of way over it or not; and all channels, drains, ditches and reserves at the side of any street shall be deemed to be part of such street;

“street works” includes work of sewerage, levelling, paving, metalling, flagging, kerbing, channelling, draining, lighting, laying of water, gas or electricity services and otherwise the making good a street or part of a street;

“structural elements” means those parts or elements of a building which resist forces and movements, and includes foundations, beams, columns, shear cores, slabs, roof trusses, staircases, load bearing walls and all other elements designed to resist forces and movements, but excludes doors, windows and nonload bearing walls;

*[Ins. Cap. A52.]*

“such plans and specification” means plans and drawing requirements as specified under the regulations made under this Ordinance;

*[Ins. Cap. A224]*

“structural plan” means a plan relating to structural elements;

*[Ins. Cap. A52.]*

“submitting person” *[Deleted by Cap. A224.]*;

“swimming pool” *[Deleted by Cap. A224.]*;

“temporary building” *[Deleted by Cap. A224.]*;

“terrace house” means any residential building designed as a single dwelling unit and forming part of a row or terrace of not less than three such residential buildings;

“verandah” means a roofed, open space attached to a house, usually with railings or columns to provide a shaded outdoor area;

*[Ins. Cap. A224]*

“verandah-way” *[Deleted by Cap. A224.]*;

“wind load” *[Deleted by Cap. A224.]*.

(2) In this Ordinance, a reference to the Yang di-Pertua Negeri shall be construed as a reference to the Yang di-Pertua Negeri acting in accordance with the advice of the Majlis Mesyuarat Kerajaan Negeri or by a member thereof acting under the general authority of the Majlis.

(3) Any building which extends into the areas of two or more local authorities shall be treated for the purpose of this Ordinance as being wholly within the area of such one of those local authorities if one-half or more of the lot within whose area the building situated lies within the limit of that local authority.

## PART 1A

### ESTABLISHMENT OF SARAWAK BUILDING BOARD, REGISTRATION OF QUALIFIED PERSONS, ACCREDITED CHECKERS, *ETC.*

#### **Establishment of the Sarawak Building Board**

**2A.** There shall be established a body corporate to be known as “Sarawak Building Board” with perpetual succession and a corporate seal and shall by that name be capable of—

- (a) suing and be sued;
- (b) acquiring, owning, holding, leasing or disposing of property, both movable and immovable; and
- (c) doing such other acts or things as a body corporate may lawfully do.

### **Composition of the Board**

**2B.—(1)** The Board shall consist of the following members who shall be appointed by the Minister with the approval of Majlis Mesyuarat Kerajaan Negeri;

- (a) a Chairman;
- (b) a Deputy Chairman;
- (c) a Secretary;
- (d) a Treasurer; and
- (e) not less than five and not more than seven other members who are qualified person.

(2) The members appointed under subsection (1) shall hold office for three years or for such other shorter period as the Minister may specify and shall be eligible for reappointment.

(3) Notwithstanding subsection (2), members appointed under subsection (1) shall cease to hold office and be deemed to have their appointment terminated if:

- (a) he has been convicted of any offence involving fraud, dishonesty or moral turpitude, or of any other offence implying defect in character which makes him unfit for the profession;
- (b) he has been adjudged a bankrupt by a court of competent jurisdiction;
- (c) he is of unsound mind or is otherwise incapable of performing his duties or is incapacitated by physical illness;

(d) he absents himself from three consecutive meetings of the Board without the prior written consent of the Chairman; or

(e) he resigns as a member of the Board.

(4) On a vacancy occurring in the Board, the Chairman shall notify the Minister who may fill such vacancy.

(5) The powers of the Board shall not be affected by any vacancy in its membership.

(6) The member of the Board may be paid such remuneration and allowances as may be determined by the Majlis Mesyuarat Kerajaan Negeri.

(7) No act done by or under the authority of the Board shall be invalidated in consequence of any defect that is subsequently discovered in the appointment, election or qualification of the members or any of them.

#### **Powers and functions of the Board**

**2C.** The Board shall have the following powers and functions to do all things necessary or convenient to be done for, or in connection with, the performance of its functions as follows—

(a) to determine the qualifications for persons to be registered as a building professional under this Ordinance;

(b) to conduct or cause to be conducted examinations or assessments as the Board considers necessary for the purpose of qualifying any person for registration under this Ordinance or the regulations made hereunder;

(c) to register the qualified persons, accredited checkers, green building certification body and green building practitioner under this Ordinance and to impose any conditions or restrictions on such registration as it may deem fit;

(d) to establish, maintain and develop standards of professional conduct and ethics of the qualified persons,

accredited checkers, green building certification body and green building practitioner;

(e) to fix, from time to time, with the approval of the Majlis Mesyuarat Kerajaan Negeri, the scale of fees to be charged for professional service rendered by any person including the qualified persons, accredited checkers, green building certification body and green building practitioner;

(f) to determine the green building rating tools to be used under this Ordinance or the regulations made hereunder or the standards submitted by the green building certification body and to direct any modification or impose any conditions or restrictions thereof as it may deem fit;

(g) to formulate and review from time to time, and to enforce, the standards or requirements for the conduct of building and structural plan submission and application for building plan approval in Sarawak, including determining the qualification for registration as qualified persons;

(h) to form a committee to hear and determine any complaint or disputes relating to professional conduct or ethics of qualified persons, accredited checkers, green building certification body and green building practitioner registered under this Ordinance or the regulations made hereunder;

(i) to provide scholarships, grants, loans or other incentives for training or research related to buildings or any matter thereof including built environment;

(j) to accept grants, donations or gifts from any source or raise funds by lawful means;

(k) to acquire, purchase, lease, dispose of, or otherwise deal with, any immovable property of the Board;

(l) to impose and collect any fees to which the Board has the power to impose and collect under this Ordinance and the regulations made hereunder;

(*m*) to borrow from bank or any financial institution, from time to time, by bank overdraft or otherwise for the purposes of carrying out its functions under this Ordinance and the regulations made hereunder;

(*n*) to form or constitute such committees, comprising members of the Board and any persons, as the Board deems necessary to assist the Board in the discharge of its duties and functions;

(*o*) with the approval of the Minister, to facilitate or enter into arrangements with any person or party, within or outside Sarawak for any matter relating to buildings including the qualifications and standards adopted by such party regarding the practice of built environment;

(*p*) to promote learning and education in connection with matter relating to building including built environment and the professional consultancy practices; and

(*q*) generally to do all such acts, matters and things as are necessary to be carried out under the provisions of this Ordinance.

### **Sarawak Building Board Fund**

**2D.—**(1) For the purposes of the discharge of its duties and functions under this Ordinance, the Board shall keep and maintain a fund to be known as the “Sarawak Building Board Fund” (“the Fund”).

(2) The Fund shall be kept and maintained in any licensed bank or other financial institution within Sarawak.

(3) The Board shall credit into the Fund—

(*a*) all fees to be imposed and collected by the Board under this Ordinance and the regulations made hereunder;

(*b*) all donations, contributions and monetary gifts received from any person, institution or organization; and



(c) any money received by the Board in carrying out its powers and functions under this Ordinance.

(4) Moneys from the Fund shall be used only for the purposes of enabling the Board to discharge its powers and functions under this Ordinance or any regulations made hereunder or in relation to any activity, function or event connected therewith.

### **Registration of Qualified Persons**

**2E.** No person shall practice as a qualified person under this Ordinance unless he is registered with the Board in the manner as may be prescribed in the regulations made hereunder.

### **Registration of Accredited Checker**

**2F.** No person shall practise as an accredited checker under this Ordinance unless he is registered with the Board in the manner as may be prescribed in the regulations made hereunder.

### **Disciplinary Committee**

**2G.** The Board may establish a committee to be known as the “Disciplinary Committee” in accordance with the provisions as may be prescribed in the regulations made hereunder to undertake any disciplinary action against a qualified person and an accredited checker under this Ordinance.

*[Ins. Cap. A224]*

## **PART II**

### **PLANNING AND DEVELOPMENT CONTROL**

#### **Competent planning authority**

**3.—(1)** The competent planning authority shall have the functions, powers and duties stipulated in Part X of the Land Code *[Cap. 81(1958 Ed.)]*.

*[Sub. Cap. A52.]*

(2) No person shall erect any building unless approval in respect of the site plan has been granted by the competent planning authority under section 8(4).

(3) An appeal against—

(a) the direction of the local authority made under section 8(7) or (8) may be made to the appropriate Minister responsible for that authority; or

(b) the decision of the competent planning authority made under section 8(4) may be in accordance with rules made under section 248 of the Land Code,

within one month from the date of the communication of such direction or decision to him.

*[Am. Cap. A52.]*

(4) After hearing the appeal, the appropriate Minister responsible for that local authority or the Minister responsible for town and country planning, as the case may be, against whose direction or decision the appeal is made, may make an order—

(a) confirming the direction of the local authority or the decision of the competent planning authority, and dismissing the appeal;

(b) allowing the appeal by directing the local authority or the competent planning authority to grant approval to the building plan absolutely or subject to such conditions as the appropriate Minister thinks fit; or

(c) allowing the appeal by directing the local authority or the competent planning authority to remove or modify any condition subject to which the plan has been approved by the local authority or by the competent planning authority or to replace the condition with such other condition as the appropriate Minister thinks fit.

(5) The decision of any of the Ministers referred to in subsection (4) shall be final and shall not be subject to any appeal in any court.

### **Regular line of street may be prescribed**

4.—(1) The competent planning authority may prescribe a line on each side of a public street within which, except under section 6, no portion of any building abutting on the said street shall, after such line has been prescribed, be constructed.

(2) A line so prescribed shall be called “the regular line of the street”.

### **Competent planning authority in certain cases may take possession of land within the regular line of street**

5.—(1) When any building or any part of a building which lies within the regular line of the street falls down or is burned down or is taken down the competent planning authority may take possession of the portion of land within the regular line of the street that was occupied by the said building and, if necessary, clear the same.

(2) If any land, whether open or enclosed, lies within the regular line of the street and is not occupied by a house, or if a platform, verandah, step or some other structure external to a house abutting on a public street or a portion of a platform, verandah, step or other such structure is within the regular line of the street, the competent planning authority may, after giving to the owner of the land or building not less than fourteen clear days’ notice in writing of its intention to do so, take possession of the said land with its enclosing wall, hedge or fence, if any, or of the said platform, verandah, step or such other structure and, if necessary, clear the same.

### **Land taken to form part of street**

(3) Land so taken possession of under this section shall be acquired by the Government at the request of the competent planning authority in accordance with the provisions of Part IV of the Land Code [*Cap. 81 (1958 Ed.)*] and when acquired shall be deemed to be part of the public street.

**Projecting verandahs, etc., may be made in streets not less than 12 metres wide**

6.—(1) The local authority may, with the concurrence of the competent planning authority give permission in writing to owners or occupiers of houses or buildings, other than a building to be issued with subsidiary titles under the Strata (Subsidiary Titles) Ordinance, 2019 [*Cap. 75*], fronting, adjoining or abutting on public street of not less than 12 metres in width to project open verandahs, balconies, sun shades, weather-frames and signboards and may, in granting such permission, impose any condition it thinks fit.

*[Am. Cap. A52, Am. Cap. A224.]*

(2) On breach of any such condition, the local authority may give the owner or occupier notice to comply with such condition and, if such condition is not complied with within thirty days, the owner or occupier shall be guilty of an offence: Penalty, a fine of one thousand ringgit, and the Court upon conviction of the owner or occupier shall, on the application of the local authority, make a mandatory order for the removal of such projection.

**Penalty**

(3) Any person who contravenes any of the conditions imposed under subsection (1) shall be guilty of an offence: Penalty, a fine of one thousand ringgit and shall also be liable to a further fine not exceeding two hundred and fifty ringgit for every day during which the offence is continued after a notice to remedy the contravention has been served upon the owner or occupier.

**Determination of the amount to be deposited and the date of completion.**

7.—(1) Where a person, who intends to commence any work for the erection of any new building, is required to execute street works under section 8 and earthworks under section 8A, he shall unless exempted apply to the local authority for an order from the local authority specifying the amount required to be deposited for street works, earthworks or landscape works, as the case may be and the date on or before which such street works, earthworks or landscape works, as the case may be shall be completed.

*[Am. Cap. A224.]*

(2) The person applying for such an order shall within fourteen days of service of the order on him deposit with the local authority the sum stated in the order or give the security.

(3) In making the order, the local authority shall have regard to the amount that would be expended by it, if it executed the street works, earthworks or landscape works under this Ordinance.

*[Am. Cap. A224]*

(4) Any person who is dissatisfied with such order shall, within ten days of the service of the order on him, appeal to the Minister whose decision thereon shall be final and shall not be subject to any appeal in any court.

#### **Notice of new buildings**

8.—(1) No person shall erect any building without the prior written permission of the local authority.

(2) Any person who intends to erect any building shall submit—

(a) to the local authority, such plans and specifications as may be required by any regulations made hereunder;

*[Am. Cap. A224]*

(b) to any relevant authority, such plans and specifications in respect of fire safety measures, telecommunication, gas, utilities, the sewerage system and septic tank for the building as may be required by any other written law ; and

*[Am. Cap. A224]*

(c) to the local authority, where the submission is made by an accredited checker, such notices as may be prescribed under the regulations made hereunder.

*[Ins. Cap. A224]*

(3) *[Deleted by Cap. A224]*

(4) The competent planning authority may, after considering a detailed site plan submitted to him, either approve it (in whole or in part and with or without modifications or reservations) or reject it.

(5) In considering any such plan, the competent planning authority may take into account any matters which he thinks are relevant, whether or not they were taken into account in the plan as submitted to him.

(6) No plans for the erection of a building shall be approved—

(a) if the building is to be erected on any holding abutting on or having access to any new street or proposed new street, until plans for such new street have been approved by the competent planning authority under the provisions of this Ordinance or under any written law;

[Am. Cap. A224]

(b) before any deposit, required to be made under the provisions of section 7, has been made or unless such building or class of buildings have been exempted from the provisions of section 7 by the Yang di-Pertua Negeri under section 63(b);

(c) until they have been approved by the competent planning authority;

(d) unless provision is made in the plans for vehicle parking spaces in the proposed building or curtilage thereof or at an alternative site as may be required by the local authority under subsection (7)(p);

(e) if the building is to be erected on land or building lots which are subject to the Part X of the Land Code [**Cap. 81 (1958 Ed.)**], unless accompanied by a sub-divisional plan certified by the competent planning authority to the effect that he has approved such sub-division;

(f) until the plans and specifications as submitted in compliance with subsection (2)(b) have been approved; or

(g) before any other conditions which the local authority or the competent planning authority may deem necessary to impose have been complied with.

(6A) Notwithstanding subsection (6), no notices for the erection of a building under subsection (2)(c) shall be accepted by a local authority until the regulations made hereunder have been complied with.

[Ins. Cap. A224]

### **Local authority may give directions**

(7) The local authority may upon receipt of the advice, direction or instruction of the competent planning authority give written directions to the person submitting a plan and specification with regard to any of the following particulars:

- (a) compliance with this or any other written law;
- (b) the site of any building and the space to be left about any building to secure free admission of light and circulation of air and to facilitate scavenging;
- (c) the levels at which the foundation and lowest floor are to be laid;
- (d) the raising of the level of the site to form a stable and healthy foundation and the materials to be used in raising the same;
- (e) the elevation of the building;
- (f) the setting forward or back of building to the regular line of street as defined in section 4;
- (g) the class, design and appearance of the building is to be erected in a district, locality or street in which only buildings of a certain class, design or appearance may be erected;
- (h) the provision of a sufficient and pure water supply within a reasonable distance of the building and the provision of adequate infrastructure for street lighting;
- (i) the setting back of buildings to any building line as determined by the competent planning authority;
- (j) the provision and construction of an arcade or paved footway for use of foot passengers along any portion of the building lot which abuts on a street;
- (k) the size, height, spacing and materials of buildings;
- (l) the location of buildings, the extent of the yards, garden and curtilage of buildings;

(m) the limit of the number of buildings or the number of specified class of buildings which may be constructed, erected on or made in, or under, any area;

(n) the prohibition or restriction of building operations permanently in any area on the ground that, by reason of the situation or nature of the land, the erection of buildings thereon would be likely to involve danger or injury to health or excessive expenditure of public money in the provision of roads, water supply, electricity or other public services;

(o) the sites of new roads entering a road or the site of a proposed road or, where land is sub-divided, to the provision of part of such land for the purpose of widening the existing road;

(p) in the case of housing developers or the erection of any building intended to be used for purposes of business or industry, the provision and construction of car parks or any payment in lieu thereof:

Provided that no direction shall be made in pursuance of this subsection, with respect to any matters specified in sections 3, 4, and 5, until the competent planning authority has been consulted.

(8) The qualified person to whom any written directions are given shall amend the plans and specifications accordingly, and re-submit, the amended plans and specifications or comply with any other directions within such period as the local authority may specify.

*[Am. Cap. A224]*

(9) Where such amended plans are not re-submitted within the specified period, or such extended period, they shall not be reconsidered and shall be deemed to have been withdrawn but he may submit fresh plans and specifications.

### **Buildings directed to be set forward**

(10) Where a building is directed to be set forward to a regular line of street, it shall be a sufficient compliance with such direction if a wall or fence of such materials and dimensions as may be approved by the local authority is erected at a distance from the line sufficient to



provide any arcade or footway which may be required under this Ordinance.

**Compensation where building directed to be set back**

(11) If the competent planning authority directs any person submitting the plan of a building to set such building back to a regular line of street, the competent planning authority may take possession of the land within the regular line of street and the land so taken possession of shall be acquired by the Government at the request of the competent planning authority in accordance with the provisions of Part IV of the Land Code [*Cap. 81 (1958 Ed.)*] and shall thenceforth be deemed a part of the public street.

**Notice of commencement of building works**

(12) No person shall commence the erection of a building unless—

(a) such work is commenced within twelve (12) months from the date on which the plans and specifications of such building were approved by the local authority;

(b) he has given the local authority four (4) clear days' notice in writing of his intention to commence such works.

(c) a copy of its structural plans, calculations and any other particulars, documents or reports as may be required by the local authority have been submitted; and

(d) he has given the local authority the notice as prescribed under the regulations made hereunder.

*[Ins. Cap. A224]*

(13) For the purposes of subsection (12)(a), “plans and specifications” means the plans and specifications originally approved by the local authority but does not include any amending plans or specifications subsequently approved by the local authority in connection therewith.

**Effect of suspension of building works**

(14) Where works on a building which have been commenced are suspended for a continuous period of more than three (3) months—

(a) the plans and specifications for such building shall be deemed to have been revoked by the local authority: Provided that the approval for such plans and specifications may be renewed by the local authority upon application by the qualified person submitting the building plans, upon such terms and conditions as the local authority may impose; and

*[Am. Cap. A224]*

(b) works on such a building shall not resume without the permission in writing of the local authority.

(15) Any person who makes any alteration to any building otherwise than is provided for in this Ordinance or without the prior written permission of the local authority shall be guilty of an offence and shall upon conviction, be liable to a fine of not less than ten thousand ringgit and not exceeding one hundred thousand ringgit and the Court before which a person is convicted for an offence under this subsection shall, on the application of the local authority, issue a mandatory order requiring such person to alter the building in any way or to demolish it.

*[Am. Cap. A224]*

(16) Any person who uses any building or part of a building for a purpose other than which it was originally constructed for without the prior written permission from the competent planning authority shall be guilty of an offence and shall upon conviction, be liable to a fine of not less than ten thousand ringgit and not exceeding one hundred thousand ringgit and shall also be liable to a further fine of two hundred fifty ringgit for every day during which the offence is continued after a notice to cease using for other purpose has been served on such person.

*[Am. Cap. A224]*

(17) Any person who—

(a) erects, commences or resumes the erection of a building in contravention of this Ordinance or the regulations made hereunder;

(b) deviates from any plan or specification approved by the local authority without the prior permission of the local authority; or

(c) fails to comply with any lawful order or written direction of the local authority or with any term or condition attached by the local authority to any modification or waiver of any of the requirements of this Ordinance or any regulations made hereunder,

shall be guilty of an offence and shall upon conviction, be liable to a fine of not less than ten thousand ringgit and not exceeding one hundred thousand ringgit and in the case of a continuing offence to imprisonment for one year and a fine of five hundred ringgit for every day during which the offence is continued after a notice requiring the person to comply with the provisions of this subsection has been served on such person.

*[Sub. Cap. A224]*

(18) In any case where proceedings have not been instituted against any person who, by reason of failure to obtain prior permission from the local authority, has contravened subsection (17) such person shall on the submission of plans and specifications to the local authority by the qualified person in accordance with this Ordinance pay to the local authority a sum of ten times of the prescribed fees or a minimum of one thousand ringgit, whichever is higher as the Yang di-Pertua Negeri may prescribe, and in the event of plans and specifications being submitted without such payment, the local authority shall refuse to accept the same.

*[Am. Cap. A224]*

(19) The Court before which a person is convicted for an offence under subsection (17) shall, on the application of the local authority or of a public officer authorized by the local authority in writing in that behalf, make a mandatory order requiring such person to alter in any way or demolish the building.

**What constitutes erecting a building**

(20) For the purposes of this section and of section 13 a person shall be deemed to erect a building who—

(a) begins work on the site thereof for or in respect of a new building;

(b) adds to or alters any existing building in such a manner as to involve—

(i) new foundations; or

(ii) new or partly new or increased superstructure or roof on existing walls or existing foundations;

(c) converts into a dwelling house any building not originally constructed for human habitation;

(d) converts into more than one dwelling house a building originally constructed as one dwelling house;

(e) converts to other purposes a house originally constructed as a dwelling house;

(f) departs either before or after the completion of the building in any particular form from any plan or specification approved by the local authority at any time in respect of such building;

(g) infringes the provisions of this Ordinance or any regulations made hereunder relating to buildings;

(h) renews or repairs any existing building in such a manner as to involve a renewal, reconstruction or erection of any portion of an outer or party wall to the extent of one storey in height whatever the material of such outer or party wall is;

(i) demolishes and reconstructs or adds to a building in such a manner as to involve more than—

(i) half the superficial area of walls and partitions;

or

(ii) half the superficial area of floors (excluding ground floor) or roofs; or

(j) constructs an additional storey or storeys, or renews, reconstructs or erects an outer or party wall of the first, second or third storey counting from the ground, to the extent of one storey in height:

Provided that, for the purposes of subsection (2) and for the purposes of section 13 a person who executes or does any of the works or things specified in paragraph (b)(ii), (f), (g) or (h) shall not be deemed to erect a building.

The expression “erection of a building” shall be construed accordingly.

Works executed on the same building on two or more occasions within ten years may be deemed to be one reconstruction and aggregated for purposes of this definition.

(21) (a) Where the erection of any building is commenced or carried out in respect of any building, it shall be presumed, until proved to the contrary, to have been commenced or carried out by the owner of the land whereon such building is erected and he shall be liable therefor.

(b) Where a building is erected on vacant land and the person who actually erected the building is not known or cannot be found in Sarawak, the building shall be deemed to have been erected by the owner of such land who shall be liable therefore.

### **Approval of plans**

(22) (a) If the local authority does not, within six calendar months from the date of the submission of any plans under subsection (2) or from the date of the resubmission of such plans amended pursuant to subsection (8), as the case may be, approve, disapprove or make written requisition with regard thereto, the person who has submitted the plan may apply to the Minister, and the powers vested in the local authority under this section shall then vest in the Minister.

(b) The provisions of paragraph (a) shall not apply to plans and specifications submitted in compliance with subsection (2)(b).

(23) Where the plans and specifications are accompanied by any notice given by an accredited checker for the purposes of subsection (2)(c), the local authority shall not reject the plan and specification if the proposed work is carried out in accordance with the submitted notices, plans and specifications which complies with the provisions of the regulations made hereunder except if—

(a) they are defective with respect to any provisions of the building regulations that are so specified; or

(b) they show that the proposed work would contravene any provisions of this Ordinance and any regulations made hereunder.

*[Ins. Cap. A224]*

### **Earthworks**

**8A.—(1)(a)** No person shall commence or carry out or permit to be commenced or carried out any earthworks without having first submitted to the local authority plans and specifications in respect of the earthworks and obtained the approval of the local authority thereto.

(b) Where earthworks involve the removal or transport of rock materials away from any land, no approval shall be given by the local authority unless the applicant has been issued with a licence by the Superintendent of Lands and Surveys under section 32A of the Land Code [*Cap. 81 (1958 Ed.)*] for the removal of such rock materials.

(2) Where the earthworks are to be commenced or carried out for the purpose of the construction of any building, street, drain, sewer, or embankment, or for the laying of any cable or pipe, or for the purpose of any other construction or work whatsoever, the plans and specifications relating to such construction or work required to be submitted under this Ordinance or any regulations made thereunder shall be submitted to the local authority at the same time as the plans and specifications in respect of the earthworks.

(3) In granting the approval under subsection (1), the local authority may impose such conditions as it deems fit:

Provided that such conditions shall not be inconsistent with any conditions imposed by the Superintendent under section 32A(2) of the Land Code [*Cap. 81 (1958 Ed.)*] when issuing a licence for the removal of rock materials.

(4) The local authority shall, subject to section 8B, where it certifies that the safety of life or property is affected or is likely to be affected by any earthworks, order the immediate cessation of the whole or any part of the earthworks; the certificate of the local authority under this subsection shall be conclusive proof of the matters stated therein and shall not be questioned or be subject to any appeal or review in any court:

*[Am. Cap. A224]*

Provided that before the issue of such order, the local authority shall consult the Chief Inspector of Buildings and give effect to whatever directions he may give in regard to the matter.

(5) Without prejudice to subsection (4), the local authority may, from time to time, give such directions as it deems fit in respect of any earthworks, and the same shall be complied with by the person to whom such directions are given, and where such directions are not complied with the local authority may order the cessation of the whole or any part of the earthworks.

(6) Notwithstanding subsections (4) and (5), the local authority may itself cause any work to be executed or any measure to be taken if it considers such work or measure necessary, and such work or measure may be in addition to or in place of anything required to be done under any direction or order given under subsection (4) or (5).

(7) Where cessation of the earthworks has been ordered under this section, the local authority may permit the resumption thereof subject to compliance with such directions or conditions as may be specified by the local authority.

(8) The local authority or any person authorized by it or on its behalf may enter upon any land, building or premises at any hour of the day or night without notice to the owner or occupier thereof for the purpose of executing any work under this section or for carrying out any inspection for the purpose of this section.

(9) Any person who contravenes any provision of this section or fails to comply with any direction or order given under this section or does any act to obstruct in any manner whatsoever the entry or the execution of any work authorized to be effected or executed under this section by or on behalf of the local authority shall be guilty of an offence and shall upon conviction, be liable to a fine of not less than twenty thousand ringgit but not exceeding two hundred thousand ringgit and imprisonment for two years and, in the case of a continuing offence, a further fine of two hundred ringgit for every day during which the offence is continued after conviction.

*[Am. Cap. A224]*

(10) Where a person has been convicted of an offence under subsection (9), the local authority may revoke the approval of the plans and specifications given under subsection (1), and the person carrying out the earthworks shall upon receipt of the notice of such revocation forthwith cease the whole of the earthworks.

(11) Where cessation of the earthworks has been ordered under subsection (4) or (5) or is required to be effected under subsection (10) and the order or requirement is not complied with, the local authority may summarily eject any person or remove any equipment, vehicle, machinery or any article whatsoever from the site of the earthworks to secure the cessation of the earthworks and for this purpose may seek the assistance of the police.

(12) Where the local authority exercises its powers under subsection (6), (11) or (16), it may recover any expenses and costs incurred by it from the owner of the land on which the earthworks were carried out in the same manner as provided for the recovery of rates; the amount of the costs and expenses to be so recovered by the local authority shall be certified by the local authority and the certificate of the local authority in this regard shall be conclusive proof of the matters stated therein and shall not be subject to any appeal or review in any court.



(13) This section shall not apply to earthworks commenced or carried out by or on behalf of the Government of Malaysia or the State Government or any local authority.

(14) Where any earthworks are commenced or carried out, the owner of the land on which such earthworks are commenced or carried out shall be deemed to have permitted such earthworks to be commenced or carried out.

(15) The local authority or any person authorized by it or on its behalf shall not be subject to any action, claim, liabilities or demand whatsoever arising out of the exercise of any of the powers conferred on the local authority under this section or under any regulations made thereunder.

(16) If any public street or any part thereof, or any building, or any structure, or any other property whatsoever belonging to the Government of Malaysia or the State Government or to the local authority is injured by or in consequence of any earthworks on any land, the local authority may repair and make good the damage done.

(17) *[Deleted by Cap. A224]*

(18) In the exercise of its power under this section, a local authority shall have due regard to the provisions of the Natural Resources and Environment Ordinance *[Cap. 84 (1958 Ed.)]* including any order or rule made, or any direction or guideline issued, thereunder for the protection and enhancement of the environment.

### **Order to review safety and stability in the course of erection of building**

**8B.**—(1) Where there are changes to the topography, features to the land or the surrounding area brought about by the erection of building or natural causes which are not in conformity with any approved plan in relation thereto, the local authority may carry out a visual inspection.

(2) Where the local authority reasonably suspects there is a defect, deformation or deterioration in the structure of a building under erection which may likely result in the failure of the building, the local authority may, after consultation with the Chief Inspector of

Buildings, issue to the owner of the building an order to review the safety and stability of—

- (a) the building;
- (b) the foundation of the building; and
- (c) the surroundings on which the erection of building is in progress.

(3) The review shall be undertaken by a qualified person other than the qualified person who prepared and certified the plans, calculations, particulars, documents or reports submitted to the local authority before the commencement of erection of building.

(4) The report of the review shall be submitted to the local authority within the period specified by the local authority.

(5) The local authority may, after evaluating the report of the review and after consulting the Chief Inspector of Buildings—

- (a) certify that the safety of life or property is affected or is likely to be affected by the erection of building; and
- (b) serve a notice in writing to the owner of the building of its intention to issue an order for cessation of the erection of building.

(6) The local authority shall inform the owner of the building of his right to object to its of intention to issue an order for cessation of the erection of building, within fourteen days from the date of service of the notice in subsection (5)(b), and if no objections are received within the period the order for cessation shall be issued with immediate effect.

(7) If objections are received under subsection (6), the local authority shall, as soon as possible after the expiry of the period within which objections may be made, hear any person who has lodged an objection and thereafter decide after consulting the Chief Inspector of Buildings, whether—

- (a) an order for cessation of the erection of building shall be issued; or
- (b) instructions under subsection (8) shall be given.

(8) Without prejudice to its power under subsection (5), the local authority shall, after evaluating the report of the review and after consultation with the Chief Inspector of Buildings and acting in accordance with his advice and direction, give to any person written instruction including the submission of a fresh or an amended plan in respect of the following:

- (a) the stabilization of slope;
- (b) the provision of additional drainage facilities;
- (c) the strengthening of existing retaining walls and the construction of new walls;
- (d) the provision of other additional features to support existing construction works; and
- (e) such other matters as the local authority considers necessary,

for the purpose of remedying any defect, deformation or deterioration in the structure of the building, removing any danger to life or property and ensuring safety and stability of the building, its foundation and surroundings and such instructions shall be complied with within the period specified therein.

(9) Where the instructions given under subsection (8) are not complied with, the local authority may order the cessation of the whole or any part of the erection of building.

(10) Where an order for cessation of the erection of building made under—

- (a) subsection (6);
- (b) subsection (7)(a); or
- (c) subsection (9), whether in whole or in part,

is not complied with, the local authority may summarily eject any person or remove any equipment, vehicle, machinery or article from the site where the building is being erected to secure the cessation of the erection of building and for this purpose may seek the assistance of the police.

(11) Notwithstanding subsections (9) and (10), the local authority may, after consulting the Chief Inspector of Buildings and acting in accordance with his advice or direction, execute any work, take any measure or demolish a building under erection—

(a) if it considers such work, measure or demolition necessary to prevent an imminent danger to life or property; or

(b) in the case of non-compliance with any instructions given under subsection (8),

and such work, measure or demolition may be in addition to or in place of anything required to be done under such instructions and the local authority may recover all expenses reasonably incurred by it in doing so from the owner of the building.

(12) The local authority or any person authorized by it or on its behalf or the Chief Inspector of Buildings may enter the site of a building under erection at any time without notice to the owner thereof to carry out an inspection or for any other purposes under this section.

(13) Where—

(a) the cessation of the erection of building—

(i) has been ordered under subsection (6), (7)(a) or (9), as the case may be; or

(ii) has been secured under subsection (10);

(b) instructions have been given under subsection (8); or

(c) any remedial work has been executed or measure has been taken under subsection (11),

the local authority may, after consultation with the Chief Inspector of Buildings, allow the resumption of the erection of building subject to compliance with such instructions and conditions as it may specify.

(14) The local authority may, without prejudice to its right to recover the expenses under section 41, refuse to allow the resumption of the erection of building under subsection (13) until all expenses reasonably incurred by it in securing the cessation of the erection of building, executing the work or taking the measure have been reimbursed by the owner of the building.

(15) Any person who—

(a) fails to comply with any order, instruction or condition given under this section; or

(b) does any act to obstruct in any manner whatsoever the local authority or any person authorized by it or on its behalf in the execution of its or his powers under this section,

shall be guilty of an offence and shall upon conviction, be liable to a fine of not less than twenty thousand ringgit but not exceeding two hundred thousand ringgit and imprisonment for two years and, in the case of a continuing offence, a further fine of one thousand ringgit for every day during which the offence is continued after conviction.

*[Am. Cap. A224]*

### **Revocation of approval of any plan, specification and permission**

**8C.** Where a person has been convicted of an offence under section 8B(15), the local authority may revoke the approval of any plan and specification and permission given under this Ordinance and he shall, upon receipt of the notice of such revocation, forthwith cease the whole of the erection of building:

Provided that before exercising its powers under this section, the local authority shall consult the competent planning authority.

**Inspection of erection of building at any stage and taking of sample for analysis**

**8D.**—(1) Nothing contained in this Ordinance shall prevent the local authority or any person authorized by it or on its behalf or the Chief Inspector of Building from—

- (a) inspecting any erection of building at any stage;
- (b) giving a notice in writing of any deviation from the approved plan or specification or non-compliance with any provision of this Ordinance which it or he may observe; and
- (c) ordering such deviation or non-compliance to be rectified.

(2) The local authority or any person authorized by it or on its behalf or the Chief Inspector of Buildings may, if its or his duties so require, take reasonable samples of any building material for analysis as it or he considers necessary, and such sample may be disposed of in such manner as it or he may direct.

(3) No payment shall be made for any sample taken under subsection (2) but a receipt for any such sample shall be given.

*[Ins. Cap. A52.]*

**Penalty for failure of building or earthworks**

**9.** Where any building or part of a building fails, whether in the course of construction or after completion, or where there is any failure in relation to any earthworks or part of any earthworks, whether in the course of the carrying out of the earthworks or after completion thereof, and the cause of such failure is due to any one or more of the following factors:

- (a) misconstruction or lack of proper supervision during construction;
- (b) misdesign or miscalculation; or
- (c) misuse,

*[Am. Cap. A52.]*

of such building or part of such building, or of such earthworks or part of such earthworks, the person responsible for—

*[Am. Cap. A52.]*

- (i) such misconstruction or such lack of proper supervision;
- (ii) such misdesign or miscalculation; or
- (iii) such misuse,

shall be guilty of an offence and shall upon conviction, be liable to a fine of not less than one hundred thousand ringgit but not exceeding one million ringgit and imprisonment for ten years, or to both.

*[Am. Cap. A224]*

### PART III

#### UNAUTHORIZED BUILDING

##### **Demolition or removal of unauthorized building**

**10.—(1)** Where the local authority is satisfied that a building has been erected or is in the course of erection or is about to be erected in contravention of section 8 or, if such building has been erected prior to the coming into force of this Ordinance, in contravention of any law then in force relating to buildings and in respect of which building approval under any law was not given subsequently, the local authority may by notice served on the owner of the land require him to do any one or more of the following acts—

- (a) to abstain from commencing or proceeding with the erection of such building;
- (b) to demolish such building within such time as the local authority may specify; and
- (c) to take steps as may be ordered by the local authority.

(2) Where the owner is unable to demolish such building within the time specified in the notice, the owner may request the local authority to carry out the requirements of the notice.

(3) No request by the owner made under subsection (2) shall absolve the owner from his liability under this section unless he makes the request within the time specified for him to demolish such building and unless within the same period of time he—

(a) deposits with the local authority such sum which the local authority thinks is sufficient to cover the costs and expenses of—

(i) demolishing such building;

(ii) removal of any movable property found in such building;

(iii) storage of such movable property; and

(iv) any other activities incidental to or arising out of sub-paragraphs (i), (ii) and (iii);

(b) indemnifies and keeps indemnified the local authority against any claim, damage, loss, action or proceedings that may be brought against the local authority arising out of and incidental to paragraph (a); and

(c) notwithstanding any sum paid under paragraph (a) pays the local authority a further sum which may be prescribed by the Yang di-Pertua Negeri for relocation purposes.

(4) Any person who fails to comply with the requirements of the notice shall be guilty of an offence and shall upon conviction, be liable to a fine of not less than ten thousand ringgit and not exceeding one hundred thousand ringgit and, in the case of continuing offence, to a further fine of one thousand ringgit for every day during which the offence continues.

*[Am. Cap. A224]*

(5) Where the owner fails to comply with the requirements of the notice, the local authority may do any or all of the acts required by the notice and notwithstanding the owner's liability to pay any fine under subsection (4), the owner shall pay such sum to the local authority as may be required under subsection (3) and shall be deemed to have indemnified the local authority in carrying out the terms of the notice as if he had requested the local authority to do so.



### **Notice before demolition**

(6) Where the building is to be demolished by the local authority, it shall give at least thirty days' notice to the occupants of the building requiring them to vacate the building and the local authority may after the lapse of the period enter the building and remove any person or movable property found therein.

(7) Any movable property removed pursuant to subsection (6) may be taken to a suitable place and there to remain at the risk of the owner and may within a period of one month from the date of the removal be claimed by any person who furnishes evidence to the satisfaction of the local authority that he is the owner and if there be no claim shall be disposed of in the manner specified in section 52.

(8) A certificate by the local authority stating the sum required to be paid by the owner under subsections (2) and (5) shall be conclusive proof of the sums due and shall not be subject to any appeal or review in any court.

### **Penalty for letting out and sale of unauthorized building**

**11.—**(1) Any person who is not the owner of the premises and who sells or enters into an agreement to sell a building which has been erected or is in the course of erection in contravention of section 8 shall be guilty of an offence and shall upon conviction, be liable to a fine of not less than twenty thousand ringgit but not exceeding two hundred thousand ringgit and imprisonment for two years.

*[Am. Cap. A224]*

(2) Any person who erects or causes to be erected any building in contravention of section 8 shall, if such building is subsequently sold or agreed to be sold, be guilty of an offence and shall upon conviction, be liable to a fine of not less than twenty thousand ringgit but not exceeding two hundred thousand ringgit and imprisonment for two years.

*[Am. Cap. A224]*

(3) Any person who lets or enters into an agreement to let an unauthorized building for rent or any other consideration shall be guilty of an offence and shall upon conviction, be liable to a fine of

not less than twenty thousand ringgit but not exceeding two hundred thousand ringgit.

*[Am. Cap. A224]*

(4) The Court before which a person is convicted for an offence under subsection (1) or (2) may also order such person to refund the purchase money for the building to the purchaser together with such compensation as the Court deems fit.

### **Modification or waiver of regulations**

**12.—**(1) The local authority may on receipt of an application in relation to any particular building or structure, and provided it is satisfied that such waiver or modification as hereinafter mentioned will not render the building or structure unsafe, modify or waive, upon and subject to such terms and conditions as it thinks fit, any of the requirements of any regulations relating to the construction of buildings.

*[Am. Cap. A224]*

(2) Any such application shall be made in writing to the local authority by or on behalf of the owner of the particular building or structure or of the particular part of such building or structure to which such application relates and shall state the nature and extent of and reasons for the proposed modification or waiver of such requirement and shall be accompanied by such plans, sections, elevations and particulars as may be required.

### **Rights of owners of adjoining premises**

(3) If it appears to the local authority on receipt of any such application that the owner of any adjoining premises should be consulted the local authority shall serve upon such owner notice of the application informing him to make representations to the local authority within a specific period.

(4) The local authority shall take into consideration the representations of any owners of adjoining premises and where the local authority decides to allow modification or waiver against the representations of any such owner, it shall submit its decision to the appropriate Minister who is responsible for that local authority.

(5) Unless the decision of the local authority is reversed or modified by the appropriate Minister responsible for that local authority within thirty days of its submission, the decision of the local authority shall be deemed to be confirmed.

## PART IV

### OTHER BUILDING REQUIREMENTS

#### **Land to be set apart for back-lane**

**13.—**(1) The local authority shall not approve any plan submitted pursuant to section 8 relating to a building unless—

(a) a back-lane, if required by the competent planning authority, of such width as may at the discretion of the competent planning authority be required, is shown on the plan, or vacant land is shown on the plan to be set apart or acquired for a back-lane of such width as may be required by the competent planning authority, and the person submitting the plan reimburses the competent planning authority for any moneys at any time paid for the acquisition by any means of the portion of such back-lane or such vacant land to the centre thereof which abuts on the holding in respect of which the plan is submitted to the extent to which it so abuts; or

(b) the person submitting the plan sets apart, where the competent planning authority so requires, a vacant strip of his land sufficient, with or without other land previously so set apart or acquired, to form a back-lane or part of a back-lane of such width as is required by the competent planning authority:

Provided that where the person submitting the plan sets apart a vacant strip of his land sufficient to form not less than one-half the width of that part of the back-lane which abuts on his land, the competent planning authority may in its discretion in a particular case approve such plan.

### **Situation of back-lane**

(2) The back-lane shall, where the competent planning authority so requires, be situated so as to conform with such line as is laid down therefor by the competent planning authority and so as to communicate at each end thereof with the land set apart or to be set apart for a back-lane by, or acquired or to be acquired from, the owners of the properties on each side thereof, and when completed the same shall, wherever possible, open upon public streets at both ends, and shall in all cases be free from obstruction throughout.

### **Non-approval of plan where building site does not abut on land available for a back-lane**

(3) Where upon the submission of a plan relating to a building for the approval of the local authority it appears that the site thereof does not abut upon any land so situate as to be capable of being set apart for a back-lane in conformity with the line laid down therefor by the competent planning authority, the local authority may refuse to approve the plan until the land situate between the site of the building and the line of the back-lane or intended back-lane immediately opposite such site has been added to the holding in respect whereof the plan has been submitted and the portion of the intended back-lane which abuts on such site so added to has been set apart or acquired for a back-lane and the person submitting the plan has reimbursed the competent planning authority in the manner and to the extent provided in subsection (1)(a) and the other provisions of that subsection have been complied with.

### **Acquisition of land between building site and line of back-lane**

(4) Where in any such case as is referred to in subsection (3) the person submitting the plan requests the competent planning authority in writing to have the land situate between the site of the building and the line of the back-lane or intended back-lane immediately opposite such site, and, if requisite, that portion of the intended back-lane which abuts on such site when added to in the manner described in subsection (3) acquired, the competent planning authority shall request the Government to acquire such land and such portion of the intended back-lane for the purpose of the same respectively being added to the holding in respect whereof the plan

has been submitted and forming part of the back-lane and shall notify the owner accordingly.

#### **Prohibition of building on insanitary ground**

**14.—(1)** No new building shall be erected on any ground which has been filled up with any matter impregnated with faecal, animal or vegetable matter or upon which any such matter has been deposited unless and until such matter has been properly removed by excavation or otherwise or has been rendered or become innocuous.

(2) Any person who does, causes or wilfully permits any act in contravention of this section shall be guilty of an offence and shall upon conviction, be liable to a fine of not less than ten thousand ringgit but not exceeding one hundred thousand ringgit and shall also be liable to a further fine of one thousand ringgit for every day during which the offence is continued after conviction.

*[Am. Cap. A224]*

#### **Buildings over public sewers, etc., not to be erected without consent of local authority**

**15.** No building shall be erected over any public sewer, private connection pipe, public surface or storm water drain, culvert, water-course, river or stream or any water main, electric cable or wire without the prior written permission of the local authority or the controlling statutory authority concerned, as the case may be.

#### **Removal of roofs and walls made of combustible materials**

**16.—(1)** Any person who, being the owner of any building which external roof is or walls are made of grass, leaves, mats, attaps or other combustible materials and which is less than 6 metres from any other building separately occupied or from any street, does not remove such roof or walls, as the case may be, within ninety days after a notice to do so has been served on him, shall be guilty of an offence and shall upon conviction, be liable to a fine of two hundred and fifty ringgit for every day during which such default continues after service of notice.

*[Am. Cap. A224]*

### **Renewal or repairing with combustible materials**

(2) Any person who after service of such notice issued under subsection (1) makes, renews or repairs any building with any combustible materials as are mentioned in subsection (1) or causes any such building to be so made, renewed or repaired shall be guilty of an offence and shall upon conviction, be liable to a fine of five thousand ringgit and shall also be liable to a further fine of two hundred fifty ringgit for every day he suffers or allows the same to remain after conviction, and the Court shall, on the application of the local authority, make a mandatory order requiring the building to be pulled down.

*[Am. Cap. A224]*

### **Erection of compartments, galleries, lofts, etc., in buildings**

17.—(1) No person shall erect or cause or permit to be erected in any building any partition, compartment, gallery, loft, roof, ceiling or other structure without having the prior written permission of the local authority.

(2) In every such case the owner shall be presumed until proved to the contrary to have commenced or carried out such erection.

### **Local authority may remove**

(3) The local authority, its agents or servants may enter any such building and remove any partition, compartment, gallery, loft, roof, ceiling or other structure which has been erected without the prior written permission of the local authority in which event the person in default or if the person in default is unknown or untraceable or even if traceable is unable to pay the expenses incurred, the owner shall pay to the local authority the costs and expenses of—

(a) demolishing such structure;

(b) removal of the movable property found in the building at a rate which may be prescribed by the local authority for every trip made by wagon or transporting vehicle for the purpose of the removal and storage;

(c) storing the movable property at a rate which may be prescribed by the local authority if it is not claimed on the day the movable property is removed; and

(d) any other activities incidental to or arising out of paragraphs (a), (b) and (c),

and shall be deemed to have indemnified the local authority against any claim, damage, loss, action or proceeding that may be brought against the local authority including any cost and expenses arising out of and incidental to paragraphs (a), (b), (c) and (d).

(4) Without prejudice to subsection (3) any person who contravenes subsection (1) shall be guilty of an offence and shall upon conviction, be liable to a fine of not less than ten thousand ringgit but not exceeding thirty thousand ringgit and shall also be liable to a further fine of three hundred and fifty ringgit for every day during which the offence is continued after conviction.

*[Am. Cap. A224]*

### **Sky-signs**

**18.—**(1) No sky-sign shall be erected in any place within the area of the local authority without the prior written permission of the local authority.

(2) The local authority may give to the owner or occupier of any premises upon which any sky-sign is so erected notice in writing to remove the same, and the owner or occupier shall remove the same within fourteen days after service of such notice.

### **Hedges and trees bordering streets to be trimmed**

**19.—**(1) The local authority may by notice in writing require the owner or occupier of any land to trim or prune the hedges thereon bordering any street so that they do not exceed two metres in height from the level of the street, and, in the case of hedges within 14 metres of a corner, one metre in height from the level of the street, and to cut and trim all trees or branches of trees overhanging any street.

(2) If the owner or occupier fails to comply with the notice within the period specified therein, the local authority may itself cause the work to be done and recover the cost and expenses thereof in the manner hereinafter provided.

**Trees not to be planted within 4 metres of street**

**20.**—(1) No tree unless it is of a specie allowed by the local authority shall be planted within 4 metres of any street or back-lane.

(2) Any person who plants any tree in contravention of this section shall be guilty of an offence and shall upon conviction, be liable to a fine of not less than one thousand ringgit but not exceeding five thousand ringgit, and the tree may be cut down or dug up by order of the local authority.

*[Am. Cap. A224]*

**Compensation in certain cases**

(3) Any tree standing within 4 metres of or overhanging any street or back-lane may be cut down or dug up by order of the local authority:

Provided that where such tree being a fruit tree was planted before the street or back-lane was laid out or intended for a street or back-lane, the local authority shall make such compensation not exceeding fifty ringgit to the owner thereof as is just.

**Cleansing of premises**

**21.**—(1) The local authority may by notice in writing require the owner or occupier of any premises to cleanse, white-wash, colour-wash, paint or disinfect his premises within a time to be stated in the notice and in such manner and such colour, if any, as may be specified in the notice.

(2) If the owner or occupier fails to comply with the notice within the period specified therein, the local authority may itself cause the work to be done and recover the cost and expenses thereof in the manner hereinafter provided.



### **Movable shed not to be erected without permission**

22. Any person who erects or causes or permits to be erected, keeps or permits to be kept, on his land or the land which he occupies any movable shed or movable structure intended to act as a roof without the prior written permission of the local authority shall be guilty of an offence and shall upon conviction, be liable to a fine of not less than one thousand ringgit but not exceeding five thousand ringgit and the Court before which the person is convicted shall, on application of the local authority, make a mandatory order requiring such person to remove such movable shed or structure.

*[Am. Cap. A224]*

### **Local authority may cause drains to be made for premises which are not properly drained**

23.—(1) If any premises is at any time not drained of waters other than sewage to the satisfaction of the local authority by a sufficient drain or pipe communicating with some drain or some other place at which the local authority is empowered to drain water other than sewage, and if there are such means of drainage within 30 metres of the boundary of such premises, the local authority may give a notice in writing requiring the owner thereof to construct or lay for such premises a drain or pipe of such materials, of such size, at such level and with such fall as it may specify for the drainage of such premises.

(2) If the owner fails to comply with such notice within thirty days from the date thereof, he shall be guilty of an offence and shall upon conviction, be liable to a fine of not less than five thousand ringgit and not exceeding fifteen thousand ringgit, and the Court upon conviction of the owner shall, on the application of the local authority, make a mandatory order requiring the owner to construct or lay such drain or pipe, or the local authority may carry out such works and the expenses incurred by the local authority in respect thereof if not forthwith paid by the owner, shall be recoverable in the manner hereinafter provided.

*[Am. Cap. A224]*

### **Hoardings to be set up during building operations**

**24.—(1)** No person intending to build or take down any building or to alter or repair the outward part of any building, shall do so without the prior written permission of the local authority and without causing sufficient hoardings or fences to be put up in order to separate the building where such works are being carried on from any street or footway.

(2) Where permission has been granted to any person to do any of the works stated in subsection (1), such person shall—

(a) maintain such hoardings or fences as are required in subsection (1) in good condition and to the satisfaction of the local authority;

(b) cause such hoardings or fences to be well lighted at night; and

(c) remove such hoardings or fences or any scaffolding used in such works within such time as may be specified by the local authority.

### **Penalty**

(3) Any such person who contravenes subsections (1) and (2) shall be guilty of an offence and shall upon conviction, be liable to a fine of not less than ten thousand ringgit and not exceeding thirty thousand ringgit and shall also be liable to a further fine of one hundred ringgit for every day during which the offence is continued after a notice requiring him to comply with any of the provisions in subsection (1) or (2) has been served on him.

*[Am. Cap. A224]*

### **Proviso**

(4) Where a local authority considers the use of a hoarding unnecessary or impracticable, it may give written permission that such building, taking down, alteration or repairs may be done without the erection of a hoarding or fence.

PART IVA  
GREEN BUILDING

**Requirements for green building rating tools and environmental sustainability**

**24A.**—(1) The Yang di-Pertua Negeri may, for the purpose of improving the quality of life and minimizing adverse effects to the environment, prescribe the requirement of environmental sustainability including compliance with green building rating tools and any matters connected therewith.

(2) The relevant authority shall impose such requirements in accordance with regulations made under section 64.

**Registration of Green Building Certification Body and Practitioner**

**24B.** No person shall practice as a green building certification body or practitioner under this Ordinance unless he is registered with the Board in the manner as may be prescribed in the regulations made hereunder.

**Appointment of Registrar of Green Buildings, etc.**

**24C.**—(1) The Minister may appoint any person with the requisite qualifications and experience as the Registrar of green buildings and such number of Deputy Registrars of green buildings for the purpose of carrying out any power and function of a Registrar prescribed under this Ordinance and the regulations made hereunder.

(2) The duties of registrar and deputy registrar, and the procedures relating to registration of green building may be prescribed in the regulations made hereunder.

*[Ins. Cap. A224]*

PART V

BUILDING IN RUINOUS STATE, *ETC.*

**Powers as regards building in ruinous and dangerous state**

**25.—**(1) Where a local authority is satisfied that any building or anything affixed thereon is in ruinous state, likely to collapse or is in any way dangerous or likely to endanger the safety of any person, the local authority shall serve notice on the owner of such building requiring him to either repair the defects or demolish the building or anything affixed thereon within such period of time as the local authority may specify and the local authority may also require such owner to put up such hoardings or fences of such specifications and within such period of time as it may specify.

(2) Notwithstanding any notice under subsection (1), if the local authority is satisfied that it is dangerous for any person to remain or reside inside such building, it may by notice require every occupier of and every lodger in such building to vacate the building within such period of time as it may specify.

(3) If upon service of the notice the owner desires to renew or repair, he shall not proceed to do so unless he has obtained planning approval to do so from the competent planning authority in the area where his building is situated.

(4) Where planning approval has been granted, the owner shall not proceed to renew or repair unless he has submitted such plans and specifications showing the intended renewals or repairs and until such plans and specifications have been approved by the local authority.

(5) Where the owner fails to put up hoardings or fences within the period of time specified in the notice or fails to put up hoardings or fences in accordance with the specifications of the local authority, the local authority may enter upon such premises where the building is situated and put up such hoardings or fences.

(6) Where the owner is unable to demolish such building within the time specified in the notice, the owner may request the local authority to carry out the requirements of the notice.

(7) No request by the owner made under subsection (6) shall absolve the owner from his liability under this section unless he makes the request within the time specified for him to demolish such building and unless within the same period of time he—

(a) deposits with the local authority such sum which the local authority thinks is sufficient to cover the costs and expenses of—

(i) demolishing such building;

(ii) removal of any movable property found in such building;

(iii) storage of such movable property; and

(iv) any other activities incidental to or arising out of subparagraphs (i), (ii) and (iii); and

(b) indemnifies and keeps indemnified the local authority against any claim, damage, loss, action or proceedings that may be brought against the local authority arising out of and incidental to paragraph (a).

(8) Any person who fails to comply with any of the requirements of the notice under subsection (1) or (2) shall be guilty of an offence and shall upon conviction, be liable to a fine of not less than one hundred thousand ringgit and not exceeding one million ringgit, and, in the case of a continuing offence, to a further fine of one thousand ringgit for every day that the offence is continued after the expiry of the period specified in the notice.

*[Am. Cap. A224]*

(9) Where the owner fails to comply with the requirements of the notice, the local authority may do any or all of the acts required by the notice and notwithstanding the owner's liability to pay any fine under subsection (8), the owner shall pay such sum to the local

authority as may be required under subsection (7) and shall be deemed to have indemnified the local authority in carrying out the terms of the notice as if he had requested the local authority to do so.

(10) A certificate by the local authority stating the sum required to be paid by the owner under subsections (5) and (9) shall be conclusive proof of the sum due and shall not be subject to any appeal or review in any court.

### **Power to shut up and secure deserted buildings**

26.—(1) If any building or land, by reason of abandonment or disputed ownership or other cause, remains untenanted and thereby becomes liable to be a resort of idle and disorderly persons or otherwise becomes a public nuisance and is complained of by any two or more of the neighbours or by a police officer not below the rank of Assistant Superintendent or by the Medical Officer of Health, the local authority, after due inquiry may cause notice in writing to be given to the owner or the person claiming to be the owner, if he is known and resident in Sarawak, or, if he is not known or so resident, may cause such notice to be put on the door of the building or some conspicuous part of the premises, requiring the persons concerned therewith, wherever they may be, to secure and enclose the same or to abate the nuisance within such period of time as it may specify.

(2) Any person who fails to comply with the requirements of the notice shall be guilty of an offence and shall upon conviction, be liable to a fine of not less than ten thousand ringgit and not exceeding thirty thousand ringgit and, in the case of a continuing offence to a further fine of five hundred ringgit for every day that the offence is continued after the expiry of the period specified in the notice.

*[Am. Cap. A224]*

(3) Where the owner fails to comply with the requirements of the notice the local authority may do any or all of the acts required by the notice and the cost and expenses of doing such work shall be recoverable by the local authority from the owner.

### **Building to which public has access**

**27.—(1)** The owner or occupier of any building or any part thereof to which the public has access shall—

(a) regularly clean and keep clean and in good repair such building or part thereof; and

(b) keep such building or part thereof free of any condition which may endanger the lives or health of his employees, members of the public and other users thereof.

(2) Where, in the opinion of the local authority, the owner or the occupier of any such building or part thereof fails to comply with subsection (1), the local authority may, by notice in writing, require such owner or occupier within such period as may be specified therein to take such steps as the local authority deems fit.

(3) Any person who contravenes subsection (1) or refuses, neglects or fails to comply within such period as may be specified in any notice issued by the local authority under subsection (2), shall be guilty of an offence and shall upon conviction, be liable to a fine of not less than five thousand ringgit but not exceeding fifteen thousand ringgit and, in the case of a continuing offence to a further fine of five hundred ringgit for every day during which the offence is continued after expiry of the period specified in the notice.

*[Am. Cap. A224]*

(4) Where any person who has been served with a notice under subsection (2) fails to comply therewith, the local authority may in its discretion, and without prejudice to any proceedings under subsection (3) and whether before or after the commencement or conclusion of such proceedings, carry out all or any of the requirements set out in such notice and recover from such person the cost and expenses thereof.

(5) The local authority may certify such cost and expenses incurred and the certificate of the local authority shall be conclusive proof of the sum due and shall not be subject to any appeal or review in any court.

### **Appointment of Chief Inspector of Buildings**

**27A.**—(1) The Majlis Mesyuarat Kerajaan Negeri may, by notification in the *Gazette*, appoint a person with sufficient engineering qualifications and experience to be the authority to be known as the Chief Inspector of Buildings, to advise the Government on the safety of buildings, and to assist local authorities on the exercise of their powers under this Ordinance.

(2) The Majlis Mesyuarat Kerajaan Negeri may appoint a Deputy Chief Inspector of Buildings and such other persons as may be required to assist the Chief Inspector of Buildings in the discharge of his functions and duties under this Ordinance.

### **Periodical inspection of buildings**

**27B.**—(1) This section shall apply only to a building exceeding five storeys or fifteen metres in height and any storey of building which is or at a level lower than the ground storey shall be deemed to be a storey.

(2) The local authority may, without prejudice to its powers under section 25, by a notice in writing served on the owner of a building, require the building to be inspected—

(a) after the tenth year commencing from the date the first occupation permit in respect of the building was issued; and

(b) thereafter at intervals of not more than ten years from the date of the completion of the last inspection of the building under this section.

(3) The owner of a building shall, upon receipt of a notice subsection (2), cause the building to be inspected within the time specified in the notice by a qualified person to be appointed by him.

*[Am. Cap. A224]*

(4) If the notice under subsection (2) is not complied with, the local authority shall notify the Chief Inspector of Buildings who shall inspect the building or cause the building to be inspected by a qualified person, and all expenses reasonably incurred shall be recovered by the local authority from the owner of the building.

*[Am. Cap. A224]*



(5) A qualified person carrying out an inspection under this section shall inspect the building in the manner prescribed in the bylaws which shall take into consideration the following:

*[Am. Cap. A224]*

(a) a visual inspection of the building, including a visual survey of the condition of the building and its structural elements and any addition or alteration to the building and its structural elements;

(b) the preparation and submission to the local authority of a report of the result of the visual inspection;

(c) if, after having considered the results of the visual inspection, a qualified person reasonably suspects or is of the opinion that there is a defect, deformation or deterioration in the building or its structural elements as will or will likely endanger or reduce the structural stability or integrity of any part of the building he shall request for permission from the Chief Inspector of Buildings, through the local authority, to carry out a full structural investigation on the building including investigation in respect of its structural elements;

(d) if the Chief Inspector of Buildings allows the request made under paragraph (c), a qualified person shall carry out a full structural investigation which shall include the following:

(i) taking all reasonable steps in obtaining information relating to the design, erection, maintenance and history of the building;

(ii) checking with reasonable diligence the structural plans of the building together with its structural calculations, or if the plans or calculations are not available to reconstruct such plans and calculations where the local authority so requires, with a view to determining any inadequacy in the structural elements of the building;

(iii) carrying out tests on the structural elements of the building without damaging any part thereof;

(iv) carrying out tests on the building materials;  
and

(v) carrying out load testing of such parts of the building as a qualified person considers necessary; and

(e) a qualified person shall thereafter prepare and submit to the local authority a report of the full structural investigation and his recommendations.

(6) A qualified person carrying out an inspection or a full structural investigation on a building shall be entitled at all reasonable times to full and free access to the building and any part thereof he is required to inspect or investigate and any person who hinders, obstructs or delays him in the performance of his duty shall be guilty of an offence.

*[Am. Cap. A224]*

(7) Without prejudice to the right of the local authority to exercise its powers and recover expenses under this section, any owner of a building who contravenes or fails to comply with a notice under subsection (2) shall be guilty of an offence.

(8) The Yang di-Pertua Negeri may, by Order in the *Gazette*, provide for the application of this section with such adaptations or modifications as may be specified therein to buildings in respect of which no occupation permit has been issued by the local authority.

(9) The local authority may, if it is satisfied after evaluating the visual inspection report submitted under subsection (5)(b) or the full structural investigation report and recommendations of a qualified person submitted under subsection (5)(e), as the case may be, and after consulting the Chief Inspector of Buildings and acting in accordance with his advice or direction,—

- (a) accept it in full;
- (b) reject it;
- (c) accept part of it, or
- (d) obtain a second opinion on it.

(10) The local authority, with the concurrence of the Chief Inspector of Buildings, may thereafter—

(a) issue an order to the owner of the building to take the necessary measures to rectify or remedy any defect, deformation or deterioration as recommended by a qualified person within such period as the local authority may specify; or

(b) issue an order to the owner of the building for closure and demolition of the building.

(11) Before exercising its powers under subsection (10), the local authority shall, if it is reasonably practicable to do so, serve a copy of the order made thereunder to every occupier of the building.

(12) Any person who fails to comply with an order given under subsection (10) shall be guilty of an offence and shall upon conviction, be liable to a fine of not less than twenty thousand ringgit and not exceeding forty thousand ringgit and imprisonment for two years and, in the case of a continuing offence, to a further fine of one thousand ringgit for every day during which the offence is continued after conviction.

*[Am. Cap. A224]*

(13) Notwithstanding subsection (12), where the owner of a building fails to comply with an order issued under subsection (10), the local authority may take any measure as specified in the said order or secure the closure and demolition of the building and recover from the owner expenses reasonably incurred by it in relation thereto.

(14) For the purpose of this section, in the case of a local authority not specified in the First Schedule, it shall be deemed to be the local authority and conferred with powers to exercise its functions as may be required in this section as if it has been specified in the First Schedule.

## PART VI NUISANCES

### **Nuisances liable to be dealt with summarily under this Ordinance**

**28.** For the purposes of sections 29, 30, 31 and 32—

(a) any premises or part thereof of such a construction or in such a state as to be a nuisance or injurious or dangerous to health;

(b) any well, pool, gutter, water-course, cistern, water closet, water sealed latrine, privy, urinal or drain so foul or in such a state or so situate as to be a nuisance or injurious or dangerous to health;

(c) any building which—

(i) is not kept in a clean state and free from effluvia arising from any sewer, drain, privy, water sealed latrine, urinal or other nuisance; or

(ii) is not ventilated in such a manner as to render harmless as far as practicable any gases, vapours, dust or other impurities generated in the course of the work carried on therein that are a nuisance or injurious or dangerous to health;

(d) any huts or sheds, whether used as dwellings or as stables or for any other purpose, which are by reason of the manner in which the huts or sheds are crowded together or the want of drainage or the impracticability of scavenging or for any other reason a nuisance or injurious or dangerous to health;

(e) any brick-field, sandpit or any other kind of excavation which is injurious to health or offensive to the neighbourhood or used for any purpose likely to be injurious to health,

shall be a nuisance liable to be dealt with summarily in accordance with sections 29, 30, 31 and 32.

### **Notice requiring abatement of nuisance**

**29.—(1)** On receipt of any information respecting the existence of a nuisance liable to be dealt with summarily under this Ordinance, the local authority shall, if satisfied of the existence of a nuisance, serve a notice on the person by whose act, default or sufferance the nuisance arises or continues or, if such person cannot be found, on the occupier or owner of the premises on which the nuisance arises, requiring him to abate the same within the time specified in the notice and to execute such works and do such things as are necessary for that

purpose and, if the local authority thinks it desirable, specifying any works to be executed.

(2) The local authority may also by the same or another notice served on such occupier, owner or person require him to do what is necessary for preventing the recurrence of the nuisance and, if the local authority thinks it desirable, specify any works to be executed for that purpose, and may serve that notice notwithstanding that the nuisance had for the time being abated if the local authority considers that it is likely to recur on the same premises.

(3) Where the nuisance arises from any want or defect of a structural character or where the premises are unoccupied, the notice shall be served on the owner.

(4) Where the person causing the nuisance cannot be found and it is clear that the nuisance does not arise or continue by the act, default or sufferance of the occupier or owner of the premises, the local authority may cause the same to be abated and may do what is necessary to prevent the recurrence thereof.

(5) Where a notice has been served on a person under this section and either—

(a) the nuisance arose from the wilful act or default of the said person; or

(b) such person makes default in complying with any of the requirements of the notice within the time specified,

he shall be guilty of an offence and shall upon conviction, be liable to a fine of not less than five thousand ringgit and not exceeding fifteen thousand ringgit for each offence whether any such nuisance order as in this Ordinance mentioned is or is not made upon him.

*[Am. Cap. A224]*

### **On non-compliance with notice, nuisance order to be made**

**30.—(1)** If either—

(a) the person on whom notice to abate a nuisance has been served as aforesaid makes default in complying with any of the requirements thereof within the time specified; or

(b) the nuisance, although abated since the service of the notice, is in the opinion of the local authority likely to recur on the same premises,

on complaint by the local authority the Court hearing the complaint may make on such person a summary order, in this Ordinance referred to as a “nuisance order”.

#### **Nuisance order**

(2) A nuisance order may be an abatement order or a prohibition order or a closing order or a combination of such orders.

#### **Abatement order**

(3) An abatement order may require a person to comply with all or any of the requisitions of the notice, or otherwise to abate the nuisance within a time specified in the order.

#### **Prohibition order**

(4) A prohibition order may prohibit the recurrence of a nuisance.

#### **When to specify works to be executed**

(5) An abatement order or prohibition order shall, if the person on whom the order is made so requires or the Court considers it desirable, specify the works to be executed by such person for the purpose of abating or preventing the recurrence of the nuisance.

#### **Closing order**

(6) A closing order may prohibit a dwelling house from being used for human habitation.

#### **When to be made**

(7) A closing order shall only be made where it is proved to the satisfaction of the Court that by reason of a nuisance a dwelling

house is unfit for human habitation, and, if such proof is given, the Court shall make a closing order and may impose a fine of not less than five thousand ringgit and not exceeding fifteen thousand ringgit:

*[Am. Cap. A224]*

Provided that a closing order shall not be made unless a notice of the hearing of the complaint on which it is to be made has been posted on the premises in a conspicuous position with an intimation in such notice that any occupant of the premises may show cause against the making of such order.

### **Cancelling closing order**

(8) A Court, when satisfied that the dwelling house has been rendered fit for human habitation, may declare that it is so satisfied and cancel the closing order.

### **Penalty for not complying with order**

(9) Any person who fails to comply with the provisions of a nuisance order with respect to the abatement of a nuisance shall, unless he satisfies that Court that he has used all due diligence to carry out such order, be guilty of an offence and shall upon conviction, be liable to a fine of five hundred ringgit a day during his default.

*[Am. Cap. A224]*

(10) Any person who knowingly and wilfully acts contrary to a prohibition order or closing order shall be guilty of an offence and shall upon conviction, be liable to a fine of five hundred ringgit a day during such contrary action.

*[Am. Cap. A224]*

(11) In either of the cases mentioned in subsections (9) and (10), the local authority or any person authorized by the local authority in writing in that behalf may enter the premises to which a nuisance order relates and abate or remove the nuisance and do whatever is necessary in the execution of such order and the expenses thereby incurred shall be paid by the person in default.

(12) In case of nuisances caused by the act or default of the owner of premises, such expenses together with any costs and expenses which the Court orders such owner to pay shall be deemed to be expenses to which section 41 applies and shall be recoverable under the provisions of that section.

(13) A Court making any order under this section may require any person on whom any order is made to pay all costs and expenses incurred in obtaining the order.

#### **Ejectment after closing order**

(14) Where a closing order has been made with respect to any dwelling house, the local authority shall serve notice of the order on every occupier of the dwelling house and within such period as is specified in the notice not being less than seven days (except in case of immediate danger) after the service of the notice the order shall be obeyed by him and he and his family shall cease to inhabit the dwelling house, and in default he shall be guilty of an offence and shall upon conviction, be liable to a fine not less than ten thousand ringgit and not exceeding thirty thousand ringgit and, in the case of a continuing offence to shall also be liable for a further fine of one thousand ringgit for every day that the offence is continued after conviction, and the Court shall, upon application by the local authority, make a summary order for his ejectment and the same may be carried into effect by any police officer or officer or employee of the local authority authorized in writing by the local authority:

*[Am. Cap. A224]*

#### **Expenses of removal**

Provided that the owner shall make to every tenant whose tenancy has not been lawfully determined such reasonable allowance, if any, on account of his expenses in removing as the Court may allow or order, and such allowance shall be recovered in a summary way before the Court.



### **Order for demolition of house unfit for habitation**

**31.—**(1) Where a closing order has been made in respect of any dwelling house and has not been cancelled by a subsequent order, the local authority, if of the opinion that—

(a) the dwelling house has not been rendered fit for human habitation;

(b) the necessary steps are not being taken with all due diligence to render it so fit; or

(c) the continuance of any building being or being part of the dwelling house is dangerous or injurious to the health of the public or of the inhabitants of the neighbouring dwelling houses,

may make a complaint to the Court, and such Court after hearing the complaint may make on the owner a summary order for the demolition of such dwelling house within a time specified in such order.

(2) The order may also contain a direction that the materials of the building or any part of such materials shall be destroyed.

### **Execution of order for demolition**

**32.—**(1) Where an order for the demolition of a building has been made, the owner thereof shall, within the time mentioned in such order, take down and remove the building and, if the order for demolition so directs and to the extent therein mentioned, destroy the materials thereof.

(2) If the owner fails to comply with the order, the local authority or any person authorized by the local authority in writing in that behalf shall proceed to take down and remove the building and, if necessary, destroy the materials, and may recover the costs of such work from the owner.

(3) The provisions of section 41 shall apply to any sum recoverable from the owners under this section.

PART VII

MISCELLANEOUS

**Mandatory order**

33.—(1) Whenever any owner or occupier is required under this Ordinance to erect or remove any building or thing or to perform any other work to which the provisions of this Ordinance apply, and such owner or occupier after due notice fails to erect or remove such building or thing or to perform such work within the specified time, the local authority may make a complaint and the Court upon hearing the complaint shall make on such owner or occupier a summary order, in this Ordinance referred to as a “mandatory order”, requiring such owner or occupier to execute the required work.

**Terms of mandatory order**

(2) A mandatory order shall require the person to whom it is directed to execute any work which the Court is authorized to require to be executed within a time to be specified in such order and shall also require such person to pay to the local authority a sum for costs and expenses incurred in obtaining such mandatory order.

**Penalty for non-compliance**

(3) (a) Any person to whom the order is addressed who fails to comply with the requirements of a mandatory order shall, unless he satisfies the Court that he has used all due diligence to carry out such order, be guilty of an offence and shall upon conviction, be liable to a fine of not less than ten thousand ringgit and not exceeding thirty thousand ringgit and, shall also be liable to a further fine of one thousand ringgit for every day that the offence is continued after conviction.

*[Am. Cap. A224]*

(b) Where the person fails to comply with the order, the local authority may enter the premises and execute the work so required to be executed and the expenses thereby incurred by the local authority shall be recoverable from the person in default in accordance with any law relating to the recovery of fines.

### **Provision as to appeal against order**

34.—(1) Where a person appeals to the High Court against a mandatory order, no liability to a fine shall arise nor, save as in this section mentioned, shall any proceedings be taken or work done under such order until after the determination or abandonment of such appeal.

### **Penalty where appeal fails**

(2) Where a mandatory order is made and a person does not comply with it and appeals against it to the High Court and such appeal is dismissed or is abandoned, the appellant shall be liable on conviction to a fine of two hundred and fifty ringgit a day during the non-compliance with the order, unless he satisfies the Court before which proceedings are taken for imposing a fine that there was substantial ground for the appeal and that the appeal was not brought merely for the purpose of delay and, where the appeal is heard by the High Court, the High Court may, on dismissing the appeal, impose the fine as if the High Court were the Court before which the summons was returnable.

### **Proceedings pending appeal**

(3) Where a mandatory order is made on any person and appealed against and the Court which made the order is of the opinion that the non-execution of the mandatory order will be injurious or dangerous to public health or safety and that the immediate execution thereof will not cause any injury which cannot be compensated by damages, such Court may authorize the local authority immediately to execute the work.

(4) The local authority, if it does so and the appeal is successful, shall pay the cost of such execution thereof and the damages, if any, sustained by the said person by reason of such execution thereof, but, if the appeal is dismissed or abandoned, the local authority may recover the cost of such execution thereof from the said person.

**Proceedings where owner is unknown**

35.—(1) Where the name or address of the owner of any premises with regard to which a Court is empowered to make a mandatory order is unknown and cannot with reasonable diligence be discovered, such Court may issue a summons addressed to the owner of the premises.

(2) Such summons may be served in the manner specified in section 55.

(3) If the owner does not appear upon the hearing of the summons, such Court may make such an order upon him in his absence as it might have made in his presence except that it shall not inflict any fine upon him.

**In case of urgency order may be made *ex-parte***

36.—(1) If in any case in which a Court has jurisdiction to make a mandatory order, the Court is of the opinion that the matter complained of will be injurious or dangerous to public health or safety and the immediate execution of the work will not cause any injury which cannot be compensated by damages, such Court may, by an *ex-parte* order, authorize the local authority immediately to execute such work.

(2) If the application for a mandatory order is subsequently refused, the local authority shall pay the damages, sustained by any person thereby, but if the mandatory order is subsequently granted the local authority may recover the cost of the work.

**Protection of the local authority and officers from personal liability**

37.—(1) No matter or thing done and no contract entered into by any local authority and no matter or thing done by any officer employed in the administration of this Ordinance or other person whomsoever acting under the direction of any local authority shall if the matter or thing was done or the contract was entered into *bona fide* for the purpose of executing this Ordinance, subject them or any of them personally to any action, liability, claim or demand whatsoever.

(2) The Minister, competent planning authority, local authority and any public officer or officer or employee of the local authority shall not be subject to any action, claim, liabilities or demand whatsoever arising out of any building or other works carried out in accordance with the provisions of this Ordinance or by reason of the fact that such building works or the plans thereof are subject to inspection and approval by the Minister, competent planning authority, local authority or such public officer or officer or employee of the Government or the local authority and nothing in this Ordinance shall make it obligatory for the Minister, competent planning authority or the local authority to inspect any building, building works or materials or the site of any proposed building to ascertain that the provisions of this Ordinance are complied with or that plans, certificates and notices submitted to him are accurate.

#### **Indemnity by local authority**

**38.** Any expense incurred by the Minister, the competent planning authority, officer or other person acting in accordance with the provisions of section 37 shall be borne by the local authority.

#### **Power to enter upon lands for purposes of this Ordinance**

**39.** Any local authority may, for the purposes of this Ordinance, by its officers, employees, agents or contractors, enter at all reasonable hours in the day time into and upon any building or land as well for the purpose of making any survey or inspection as for the purpose of—

(a) executing any work authorized by this Ordinance to be executed by it;

(b) ascertaining whether there is, or has been, on or in connection with the building, a contravention of this Ordinance or of any regulations made hereunder; or

(c) inspecting the documents, books or records kept and maintained by a qualified person,

without being liable to any legal proceedings or molestation whatsoever on account of such entry or of anything done in any part of such building or land in pursuance of this Ordinance:

**Proviso**

Provided that the local authority shall not enter into any dwelling house in actual occupation, except with the consent of the occupier thereof or after giving twenty-four hours' previous notice to such occupier:

Provided also that the Yang di-Pertua Negeri may declare that any class of premises, for the control and supervision of which regulations may be made under this Ordinance, are liable to night inspection, and thereupon any officer, employee, agent or contractor in that behalf duly authorized in writing may, at any time of the day or night and without notice, enter using such force as may be necessary into and search or inspect any premises of the class specified in the declaration.

**Penalty for obstructing any authority in its duty**

**40.** Any person who at any time hinders or obstructs any local authority or any of its officers, employees, agents or contractors in the performance and execution of its duty or of anything which it is respectively empowered or required to do by virtue or in consequence of this Ordinance, or removes any mark set up for the purpose of indicating any level or direction necessary to the execution of works authorized by this Ordinance, shall be guilty of an offence and shall upon conviction, be liable to a fine of not less than five thousand ringgit and not exceeding fifteen thousand ringgit or imprisonment for six months, or to both.

*[Am. Cap. A224]*

**Recovery of expenses and costs payable by owners**

**41.—(1)** All and any sum payable by or recoverable from the owner or owners in respect of expenses and costs incurred by the local authority in or about the execution of any work which are, under this Ordinance, recoverable from the owner or owners of any premises shall, subject and without prejudice to any other rights of the local authority, be a first charge on the premises in respect of which such expenses or costs have been incurred.

(2) In addition to any other remedies conferred by this Ordinance any such sum may be recovered in the manner hereinafter provided, and the person or persons liable to pay the same shall be the owner or owners at the time when the work was completed.

(3) Any occupier who when requested by or on behalf of the local authority to state the name of the owner of the premises refuses or wilfully omits to disclose or wilfully mis-states the same shall, unless he shows cause to the satisfaction of the Court for his refusal or mis-statement, be guilty of an offence and shall upon conviction, be liable to a fine of not less than one thousand ringgit and not exceeding five thousand ringgit.

*[Am. Cap. A224]*

(4) If any such sum remains unpaid at the expiration of the prescribed time, a notice shall be served upon the person or any one of the persons, if more than one, liable to pay the same, calling on him to pay the same together with a fee of such amount as may be prescribed for the cost of the notice, within fifteen days of the service of such notice.

(5) If no person liable to pay the same can be found, such notice shall be deemed to have been duly served by the posting thereof at the office of the local authority and by fixing a copy thereof on some conspicuous part of the premises in respect of which such expenses or costs have been incurred.

(6) At the expiration of the said period of fifteen days or such further period as may be allowed by the local authority, if any such sum or any part thereof remains due and unpaid, it shall be deemed to be in arrears and may be recovered in the manner hereinafter provided.

(7) The charge hereinbefore mentioned shall attach, and the powers and remedies hereinbefore conferred shall become exercisable as from the date of completion of the work, and thereafter such powers and remedies may be exercised against the premises or against any movable property or crops for the time being found thereon, notwithstanding any change or changes in the ownership or occupation of the premises subsequent to the said date.

### **Proceedings for recovery of arrears**

**42.—(1)** For the recovery of arrears the local authority shall have and may exercise, either successively or concurrently, in addition to any other remedies conferred by this Ordinance, either or both of the powers following, that is to say—

(a) the local authority may issue a warrant of attachment and may seize by virtue thereof any movable property and crops of any person liable to pay the arrears and may also seize any movable property or any crops to whomsoever belonging which are found on the premises in respect of which the arrears are due and may, after service of the prescribed notice, sell the same by public auction in the prescribed manner;

(b) the local authority may, by notice of sale to be served or published in the prescribed manner, declare its intention of selling, at the expiration of three months from the date of such notice of sale, the premises in respect of which the arrears are due and, if, at the expiration of such period, such arrears have not been paid or satisfied, the local authority may sell by public auction, in lots or otherwise, the whole of such premises or such portion thereof or such interest therein as it deems sufficient for recovery of such arrears and costs:

Provided that the local authority shall not proceed under paragraph (b) to sell the premises in respect of which the arrears are due, or any portion thereof or interest therein, where there is or are upon the premises and liable to be seized and sold under paragraph (a) movable property or crops belonging to the owner of a value estimated by the local authority to be sufficient to realize the sum required to satisfy the arrears and costs.

(2) Any tenant, sub-tenant, or occupier, who, in order to avoid the seizure or sale of his property for non-payment of arrears payable by the owner of the premises, pays such arrears and costs may thereafter, in the absence of any written agreement to the contrary, deduct the amount so paid by him from the rent due or to become due by him to his immediate landlord on account of the premises or such part thereof as is held or occupied by him, and may retain possession until such amount has been fully reimbursed to him whether by deduction from the rent or otherwise. Any tenant or sub-tenant who



has reimbursed, whether by allowing a deduction from his rent or otherwise, any sub-tenant or occupier holding or occupying under him the amount so paid by such sub-tenant or occupier shall have a similar right to deduct the amount from the rent due or to become due to his immediate landlord and to retain possession until similarly reimbursed.

(3) The receipt of any duly authorized public officer for any amount so paid by any such tenant, sub-tenant or occupier shall be deemed an acquittance in full for the like amount of rent.

(4) If any premises in respect of which arrears are due, or any such movable property or crops as are mentioned in subsection (1) or the proceeds of sale thereof are already in the custody of the law under any process of execution whereby the local authority is unable to exercise the remedies hereinbefore conferred, the local authority may notify the sheriff or the bailiff of the Court concerned of the amount of the arrears, and shall be entitled without obtaining a judgment to be paid such amount out of the proceeds of sale of such premises or property in priority to the judgment debtor and to the judgment creditor and to any other creditor.

(5) A certificate from the local authority shall, unless the same be disputed by the judgment debtor, be *prima facie* evidence of the amount of such arrears, and, in case of dispute, the amount shall be summarily determined by the Court.

### **Attachment**

**43.—**(1) The attachment mentioned in section 42(1)(a) may be made by a person appointed for the purpose by the local authority who shall publicly notify the attachment and shall take an inventory of the property attached.

(2) Such person shall be deemed to be a public servant within the meaning of the Penal Code *[Act 574]*.

(3) Such person may break open in daytime any house or building for the purpose of effecting such attachment.

#### **Application of proceeds**

**44.**—(1) The proceeds of a sale under section 42(1) shall be applied in the first place in satisfaction of the arrears together with interest thereon at the rate of six per centum and costs.

(2) In the event of there being any surplus remaining the local authority shall, if satisfied as to the right of any person claiming such surplus, pay the amount thereof to such person or, if not so satisfied, shall hold the amount in trust for the person who may ultimately succeed in due course of law in establishing his title thereto.

(3) If no title is established to such surplus within a period of two years from the date of the sale, it shall be paid into the general revenue of the local authority concerned.

#### **Title conferred by purchase at sale under section 42**

**45.**—(1) The purchaser at a sale held under section 42(1)(b) shall be deemed to have acquired the right offered for sale free from all subordinate interests derived from it except such as are expressly reserved by the local authority at the time of sale.

(2) The local authority shall notify in such manner as it deems fit the result of the sale and the conveyance to the purchaser of the property or right offered for sale.

#### **Cost of proceedings for recovery of arrears**

**46.** All costs of any proceedings for the recovery of arrears may be recovered as if they formed part of such arrears.

**Power to stop sale**

47. If any person having any interest in any property liable to be sold at any time previous to such sale tenders to the local authority the arrears with interest and costs, the local authority shall thereupon desist from all further proceedings in respect thereof.

**Application to Court**

48.—(1) If any person whose movable property, crop or land has been attached or advertised for sale disputes the propriety of the attachment or sale, he may apply to the Court for an order to stay the proceedings.

(2) The Court, after hearing the local authority and making such further inquiry as is necessary, shall make such order as is just.

**Security to be given**

49. No application shall be entertained by the Court under section 48 unless the applicant has deposited in Court the amount of the arrears and costs or given security for the same to the satisfaction of the Court.

**Liability of transferor**

50.—(1) Every person who sells or transfers any property in respect of which costs and expenses have been incurred by the local authority in or about the execution of any work which are, under this Ordinance, recoverable from the owner thereof shall continue to be liable for the payment of all such costs and expenses payable in respect of such property and for the performance of all other obligations imposed by this Ordinance upon the owner of such property which become payable or are to be performed at any time before such notice of transfer has been given.

(2) Nothing herein shall affect the liability of the purchaser or transferee to pay such expenses or costs in respect of such property or affect the right of the local authority to recover such costs and expenses from or to enforce any obligation under this Ordinance against the purchaser or transferee.

**Proceedings if an occupier opposes the execution of works**

**51.—**(1) If the occupier of any premises prevents the owner thereof from carrying into effect in respect of such premises any of the provisions of this Ordinance after notice of his intention so to do has been given by the owner to such occupier, the Court, upon proof thereof and upon application of the owner, may make an order in writing requiring such occupier to permit the owner to execute all such works with respect to such premises as are necessary for carrying into effect the provisions of this Ordinance and may also, if it thinks fit, order the occupier to pay to the owner the costs relating to such application or order.

(2) If after the expiration of eight days from the date of the order such occupier continues to refuse to permit such owner to execute such works, such occupier shall be guilty of an offence and shall upon conviction, be liable to a fine of not less than five thousand ringgit and not exceeding fifteen thousand ringgit, and, in the case of a continuing offence to a further fine of one thousand ringgit for every day that the offence is continued after conviction, provided that every such owner during the continuance of such refusal shall be discharged from any penalties to which he might otherwise have become liable by reason of his default in executing such works.

*[Am. Cap. A224]*

**Disposal of matters and things removed by local authority**

**52.—**(1) Any matter or thing removed by any local authority in executing any work which it is entitled to execute under this Ordinance shall except as otherwise provided be the property of the local authority and may be sold by public auction or, if the local authority thinks the circumstances of the case require, may be sold otherwise or be disposed of without sale.

(2) The moneys arising from the sale may be retained by the local authority and applied in or towards the expenses incurred and the surplus, if any, shall be paid on demand to the owner of such matter or thing.

(3) If such surplus is not claimed within two years it shall be paid into the general revenue of the local authority concerned.

(4) If any matters or things belonging to several persons are removed by the local authority in executing any such work, it shall cause such matters or things, if sold, to be sold separately.

### **Granting of permits to be discretionary**

**53.—**(1) The grant or renewal of any permit in pursuance of this Ordinance shall be in the discretion of the local authority or person authorized to grant or renew the same and a permit may be granted, renewed or refused without assigning any reason therefor and may be granted or renewed subject to such restrictions and conditions as the local authority or person granting or renewing the same may think fit and such permit shall be subject to suspension or revocation at any time without compensation and without notice by the local authority upon breach of any restriction or condition subject to which it was issued.

(2) The local authority or person authorized to grant or renew such permit may require any applicant therefor to furnish such information as the local authority or that person may reasonably require for a full and proper consideration of the application and in the event of a refusal to furnish such information shall refuse to grant or renew such permit.

(3) Save as otherwise provided, any permit granted or renewed in pursuance of this Ordinance or regulations made hereunder may be for such period not exceeding twenty-four months as the local authority thinks fit.

*[Am. Cap. A224]*

(4) There shall be charged for the grant or renewal of any permit such fee, if any, as may be prescribed.

(5) No such permit shall be transferable without the consent of the local authority.

(6) Save as otherwise provided, any person aggrieved by the refusal by any local authority to grant or renew a permit or by the suspension or revocation by such local authority of any permit may within the month of such refusal, suspension or revocation appeal to the Minister whose decision thereof shall be final.

(7) In this section “permit” includes any approval, consent, leave, permission or authorization which may be granted in pursuance of this Ordinance.

**Receipts and notices may be given by officer authorized thereunto**

**54.—**(1) All notices, orders, receipts, warrants and other documents of whatsoever nature which a local authority is empowered to give by this Ordinance may be given by any officer or employee authorized thereunto by the local authority.

(2) Where any such notice, order, receipt, warrant or document requires authentication, the signature or a facsimile thereof of the local authority or any officer or employee authorized thereunto by the local authority affixed thereto shall be sufficient authentication.

**Service of notice**

**55.—**(1) Every notice, order, summons or document required or authorized by this Ordinance to be served on any person may be served—

(a) by delivering the same to such person or by delivering the same at the last known place of abode of such person to some adult member or servant of his family;

(b) by leaving the same at the usual or last known place of abode or business of such person in a cover addressed to such person; or

(c) by forwarding the same by post in a prepaid cover addressed to such person at his usual or last known place of abode or business.

(2) A notice, order, summons or document required or authorized by this Ordinance to be served on the owner or occupier of any premises shall be deemed to be properly addressed if addressed by the description of the “owner” or “occupier” of such premises without further name or description.

(3) A notice, order, summons or document required or authorized by this Ordinance to be served on the owner or occupier of

any premises may be served by delivering the same or a true copy thereof to some adult person on the premises or, if there is no such person on the premises to whom the same can with reasonable diligence be delivered, by affixing the notice, order, summons or document to some conspicuous part of the premises.

**Default in compliance with notice. General penalty**

**56.**—(1) When any notice under this Ordinance requires any act to be done or work to be executed by the owner or occupier of any premises and default is made in complying with the requirement of such notice, the person in default shall, where no fine is specially provided for such default, be liable on conviction to a fine of not less than ten thousand ringgit and not exceeding thirty thousand ringgit or, if any work is required to be done, one thousand ringgit a day during his default.

*[Am. Cap. A224]*

(2) When any such notice requires any act to be done or work to be executed for which no time is fixed by this Ordinance, it shall fix a reasonable time for complying with the requirement.

**Court for trial of offences**

**57.** Any offence under this Ordinance or the regulations made hereunder may be tried by a Court of competent jurisdiction.

*[Am. Cap. A224]*

**Power to conduct prosecution**

**58.** Prosecution of any offence under this Ordinance or any regulations made hereunder may be conducted by the Public Prosecutor or any person authorized by him under section 377(b) of the Criminal Procedure Code *[Act 593]*.

*[Sub. Cap. A224]*

**Employee of authority may demand names and addresses of certain places**

**59.**—(1) Any person who is charged by any officer or employee of the local authority or any police officer with any offence under this Ordinance shall give his name and address to such officer, employee or police officer, if so required.

(2) The occupier of any premises shall, if required by any officer or employee of the local authority or any police officer, give the name and address of the owner of the premises, if known.

(3) Any person who offends under this section or wilfully misstates his name and address or the name and address of the owner of any premises shall be guilty of an offence and shall upon conviction, be liable to a fine of not less than five thousand ringgit but not exceeding fifteen thousand ringgit.

*[Am. Cap. A224]*

**Power of arrest**

**60.**—(1) Any police officer or any officer or employee of the local authority duly authorized in writing by the local authority generally or in any particular case may arrest any person committing any offence in his view or who he has reason to believe has committed any offence punishable under this Ordinance—

(a) if the name and address of the person are unknown to him;

(b) if the person declines to give his name and address; or

(c) if there is reason to doubt the accuracy of the name and address, if given.

(2) A person arrested under this section may be detained until his name and address are correctly ascertained:

Provided that no person so arrested shall be detained longer than is necessary for bringing him before the Court unless the order of the Court for his detention is obtained.



### **Power to investigate**

**60A.—(1)** Any person authorized by the local authority or any police officer not below the rank of inspector or any police officer in charge of a police station (referred to in this section collectively as an “investigating officer”) may carry out investigation into any offence under this Ordinance or the regulations made hereunder, and in carrying out such investigation, the investigating officer may exercise all or any of the special powers in relation to police investigations provided in the Criminal Procedure Code [*Act 593*].

(2) Any investigating officer may in writing require the attendance before himself of a person who appears to be acquainted with the facts and circumstances of that case or is suspected of being concerned with any offence under this Ordinance or the regulations made hereunder, under investigation.

(3) If the person who is so required to attend fails to comply therewith, the investigating officer may report such failure to a Magistrate who will issue a warrant to secure the attendance of that person.

### **Power to compound offences**

**60B.—(1)** The local authority or any person duly authorized by local authority may, with the consent in writing of the Public Prosecutor, compound any offence committed by any person under this Ordinance and any regulations made hereunder, by making a written offer to the person suspected to have committed the offence to compound the offence upon payment to the local authority or any person duly authorized by local authority an amount of money not exceeding two-third of the maximum fine for that offence within such time as may be specified in his written offer.

(2) If the amount specified in the offer is not paid within the time specified in the offer, or such extended time as the local authority or any person duly authorized by local authority may grant, prosecution for the offence may be instituted at any time after that against the person to whom the offer was made.

(3) Where an offence has been compounded under this section—

(a) no prosecution shall be instituted in respect of the offence against the person to whom the offer to compound was made;

(b) any thing seized in connection with the offence may be disposed of by the local authority or any person duly authorized by local authority may subject to such terms as the local authority or any person duly authorized by local authority may think fit; and

(c) a sum equivalent to—

(i) the fee due and payable under this Ordinance, to the Government at the time of the commission of the offence; and

(ii) any expense incurred, or damage suffered by the Government by reason of the offence committed by that person, such expense or damage,

shall be assessed by the local authority or any person duly authorized by local authority.

(4) All sums of money received under this section shall be credited into the State Consolidated Fund.

**Order for payment of costs or compensation, *etc.***

**60C.** After a person has been convicted for an offence against this Ordinance or any regulations made hereunder, the Court, in addition to imposing a penalty for the offence, may, where it appears to the Court that any other person has or the Government, by reason of the commission of, or the omission resulting in the offence, suffered loss or damage to any property, order the person so convicted to pay the other person or the Government the costs and expenses incurred or compensation for loss or damage to the property and any other costs, in an amount as the Court considers fit.

*[Ins. Cap. A224]*

### **Saving of prosecution**

**61.** Nothing in this Ordinance shall prevent any person from being prosecuted under any other written law for any act or omission which constitutes an offence under this Ordinance or from being liable under that other written law to any other or higher punishment or penalty than that provided by this Ordinance:

Provided that no person shall be punished more than once for the same offence.

### **General penalties**

**62.** Any person guilty of an offence under this Ordinance or any regulations made hereunder for which no penalty is expressly provided shall be liable on conviction to a fine of not less than ten thousand ringgit and not exceeding thirty thousand ringgit and, in the case of a continuing offence to a further fine of one thousand ringgit for every day that the offence is continued after conviction.

*[Am. Cap. A224]*

## **PART VIII**

### **SUBSIDIARY LEGISLATION**

#### **Power to make Orders providing for exemptions from, and for modifications of, the Ordinance**

**63.** The Yang di-Pertua Negeri may by Order\*—

(a) amend the Schedules;

(b) exempt in Second Schedule any building or class of building or building works or any area of any local authority from any or all of the provisions of this Ordinance or any regulations made hereunder; or

\*(c) modify, in their application to any local authority area or part thereof, any of the provisions of this Ordinance or any regulations made hereunder.

*[Am. Cap. A224]*

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\* See Swk. L.N. 7/96 and page 303 of this Book.

### **Power to make regulations**

**64.—(1)** The Yang di-Pertua Negeri shall have the power to make regulations which shall be operative throughout the whole of any local authority area or only in such parts of the local authority area as may be prescribed in the regulations for or in respect of every purpose which is deemed by him necessary for carrying out the provisions of this Ordinance, and for prescribing any matter which is authorized or required under this Ordinance to be prescribed, and in particular and without prejudice to the generality of the foregoing for or in respect of all or any of the matters specified hereunder—

(a) the construction, alignment and elevation of all buildings or other structures and all parts thereof and the methods and materials to be used in connection therewith, for compelling the demolition, pulling down, removal or rendering safe of all buildings, walls, bridges, earthworks and verandahs of an unsafe or dangerous character, or which have been allowed to fall into a dilapidated condition, and for doing any such work at the cost of the owner and recovering such cost;

(ai) the submission of plans, specifications, calculations, particulars, documents and reports relating to erection of building, the persons qualified to submit the same and their duties and responsibilities, the form and nature or classification of plans, calculations, particulars, documents and reports which such person shall submit;

(aii) the manner and procedure for making an application for the approval of plans and specifications for erection of building;

(aiii) the planning, design and erection of building including—

- (A) the structural strength of the building;
- (B) the stability of the building;
- (C) precautions against overloading;
- (D) measures to safeguard adjacent buildings;
- (E) underpinning;

(F) fire precautions measures; and

(G) drainage measures including waste treatment and removal;

*[Ins. Cap. A224]*

(aiv) the provision of embankments and retaining walls;

(av) the submission of particulars of qualified persons, contractors, skilled construction workers and construction site supervisors engaged or employed for the purposes of or in the erection of building;

(avi) the prescribing of documents, books or records to be kept and reports or certificates to be made or issued under this Ordinance;

(avii) the time, manner and procedure for making applications for temporary occupation permit, partial occupation permit and occupation permit;

(aviii) the manner and procedure for the sampling of building materials;

(aix) the manner for carrying out periodical inspection of buildings and the form in which the reports required in relation thereto shall be submitted;

(ax) the powers, duties and functions of the Chief Inspector of Buildings and his deputies;

*[Ins. Cap. A52, Am. Cap. A224]*

(axi) the green building requirements including—

(A) environmental sustainability measures including the imposition of technical or minimum standard of environmental sustainability for building or classes or types of buildings and any matter related thereto;

(B) the method by which the standard of environmental sustainability may be assessed, green building rating tools, or audit system and any matter related thereto;

(C) conservation of energy, audit of energy efficiency for building and any matter related thereto;

(D) requirements, qualifications and registration of green building certification body and practitioner;

(E) preparation and submission of reports, certifications or other documents required for environmental sustainability and any matter related thereto; and

(F) duties and functions of Registrar and the procedures relating to registration of green building.

(axii) the procedure to carry out the disciplinary action against qualified persons and accredited checker and any matter related thereto;

(axiii) the requirements, qualifications and the procedure for registration of qualified persons and accredited checkers and any matter related thereto; and

(axiv) the regulation prescribing for person or class of persons responsible for performing the functions of local authorities in connection with accredited checkers which may—

(A) contain provisions prescribing the period for which notices and certificates to be issued;

(B) contain provisions precluding the giving of, or requiring the withdrawal of any approval;

(C) contain provisions authorising the withdrawal of any approval;

(D) make provisions for the supply to the local authorities of copies of any list of accredited checkers maintained by the Board; and

(E) make provisions for the scale of fees for accredited checkers;

(axv) the submission of plans, specifications, calculations, particulars, documents and reports relating to landscape works or earthworks in relation to building development, the persons qualified to do such submission and any matter related thereto;

*[Ins. Cap. A224]*

(b) prohibiting or regulating the erection or use of back-to-back buildings, and ensuring sufficient light, air space and ventilation between buildings, and adequate light and through ventilation within buildings;

(c) prohibiting the owner or occupier of any property from allowing any wells or other excavations thereon to be in an unprotected or dangerous state, and compelling the fencing, filling in or covering over of wells or excavations which are in such a state, and doing such work at the cost of the owner or occupier and recovering such cost;

(d) regulating, controlling or prohibiting the erection or use of temporary or movable structures, whether standing on wheels or otherwise, and prohibiting or restricting the use for business or dwelling purposes of tents or similar structures;

(e) preventing the discharge by any guttering or downpipe on to any road, pavement or footway, and securing, regulating and controlling the laying down of pipes to carry any outflow therefrom to such gutter or drain as may be authorized or approved by the local authority for the purpose;

(f) preventing or regulating the erection of buildings on ground contaminated by any faecal, animal or vegetable matter;

(g) requiring and regulating the lighting and cleansing of lifts, stairways and passages used in common by different tenants of the same building, and the cleansing, drainage and paving of courts, yards and open spaces used in connection with domestic buildings;

(h) preventing the alteration of any building in such manner as to cause, either in itself or from the circumstances or nature of the locality in which it is situated, a disfigurement to the local authority area, and preventing the use of any property in such manner as to cause annoyance to the inhabitants of such locality, and securing the removal of projections over streets;

(i) preventing the erection of any building whatsoever which, in the opinion of the local authority, is or is likely to be

objectionable by reason of either the nature or construction of the building itself, or the uses to which it is to be put, or its environment;

(j) regulating or prohibiting the use for human habitation of any building not erected for that purpose;

(k) preventing the sub-division or alteration of buildings in such a manner as might be calculated to be injurious to health, or to depreciate the value of properties in the locality, or to cause annoyance to the inhabitants of the neighbourhood;

(l) preventing buildings or lands being put to uses which might be calculated to depreciate the value of neighbouring property or to interfere with the convenience or comfort or safety of neighbouring occupiers;

(m) regulating, restricting or prohibiting the erection of buildings of wood, or wood and metal, or palm leaf, or any other impermanent material, or of hoardings or fences;

(n) regulating the inspection of buildings by the local authority, its officers and servants, and regulating the erection and use of scaffolding and hoarding during the construction, demolition, repair or alteration of any building;

(o) determining and regulating—

(i) the structure of walls, foundations, roofs, chimneys, windows, guttering, downpiping and all other parts of buildings, whether new or already existing, in order to secure stability, sufficient height, light and ventilation, and the proper carrying off of rainwater as well as for the prevention of fires and for purposes of health;

(ii) the dimensions of rooms, cubicles, staircases and other parts of buildings;

(iii) the sufficiency of the space about buildings in order to secure a free circulation of air and the proper ventilation of buildings;



(iv) the closing of buildings or parts of buildings which are unfit for human habitation;

(v) the frontage of, air space about, lighting, air-conditioning, ventilation, height of and approaches and entrances to, the provisions of parking places for vehicles in or for and exits from buildings;

(vi) the provisions of arcades, footways and roads;

(vii) the provision, maintenance and repair in any building or on any premises of a water supply, sanitary accommodation, sink accommodation, bathing and washing accommodation;

(viii) the construction, maintenance and repair in any building or on any premises of lifts and the provision of light and air thereto; or

(ix) the provision of refuse chutes in multi-storey building;

(p) giving of notice and the deposit of plans, specifications and sections, and payment of charges in respect thereof, by persons wishing to construct, alter or repair buildings, and the approval or otherwise of all plans, specifications and sections of any such building, alteration or repair, and the removal, alteration or pulling down, at the cost of the owner, of any work begun or done in contravention of any regulation or any direction lawfully given thereunder, and preventing the occupation of any new or altered building until a certificate of the fitness thereof for habitation has been issued by the proper authority;

(q) providing that plans for the construction, alteration and repair of buildings, or specified classes of buildings, shall be accepted by the local authority only if they are prepared by architects or persons whom the local authority recognizes as qualified to act for this purpose as architects or engineers, as the case may be;

(*r*) prescribing forms of permits, notices and other documents for use in connection with this Ordinance;

(*s*) securing the prevention, and the prevention of the spread and extinguishment of fire, including the provision—

(i) for building materials to be fire resisting and for fire resistance grading of such materials;

(ii) regarding methods of construction and design of any building to secure its safety from fire;

(iii) for means of escape from any premises in the event of fire and for the maintenance of such means of escape;

(iv) for fire stops and fire breaks;

(v) with regard to access to premises for the fire brigade in the event of fire, and means of access within a building for fire fighting purposes;

(vi) for the ventilation of buildings for the purpose of removing gases and smoke that may be caused by fire;

(vii) for fire fighting equipment both manual and automatic and of fire detectors and fire alarms and their maintenance;

(viii) for an adequate supply of water for fire fighting purposes; and

(ix) for any other measures for the safety of fires and the prevention and spread of fire;

(*t*) prescribing the maximum period which may elapse between approval of building plans by the local authority and the commencement and completion of building;

(*u*) to require the owner or occupier of premises, or any other person having a duty under this Ordinance to execute any work or perform any act necessary in the opinion of the local authority to secure compliance with this Ordinance and in default

of compliance with such requirement on the part of such owner or occupier or other person, to authorize the local authority to execute such work or perform such act itself and to recover the expenses and costs incurred by it in or about the execution of such work or the performance of any such act, from such owner, occupier or other person, as the case may be;

(v) in case of emergency or where the owner cannot after due enquiry be found, to authorize the local authority to execute such work or perform such act itself without first requiring the owner, occupier or other person as aforesaid to do so, and to recover the expenses and costs incurred by it in or about the execution of such work or the performance of such act from such owner, occupier or other person;

(w) to apportion responsibility for failure to any building or parts of a building and to require any person or class of persons to report such failures and to explain the causes of such failure;

(x) the payments to be made for, and other incidents of, permits issued under this Ordinance;

(y) the fees, costs and other sums charged for any matter or thing required or authorized to be done under this Ordinance;

(z) the collection, remission, rebate or deferment of payment of any sum required to be paid under this Ordinance;

(aa) the offences under this Ordinance and any regulations made hereunder which may be compounded by the local authority, the persons who may compound, the limit of the sum of money to be collected by such local authority for compounding such offences and the procedure and forms to be complied with in compounding;

(bb) in so far as they do not fall within any of the preceding paragraphs, all procedural and other matters which by this Ordinance are required or permitted to be prescribed, or which are necessary or convenient to be prescribed for carrying or giving effect to the provisions of this Ordinance; and

(cc) to provide for the punishment for offences under the regulations made hereunder not exceeding a fine of one hundred thousand ringgit and imprisonment for one year and, in the case of a continuing offence, not exceeding a further fine of one thousand ringgit for each day the offence is continued after conviction;

[Sub. Cap. A224]

(dd) making provisions in respect of earthworks and in particular—

(i) to provide for the submission of plans, specifications, particulars, documents and reports relating to earthworks, the persons qualified to do such submission and any matter related thereto;

(ii) to provide for exemption from all or any of the provisions of this subparagraph in respect of earthworks of a minor or temporary character; and

(iii) generally to give effect to the objects and purposes of section 8A.

[Ins. Cap. A224]

(2) Any regulation may further provide that, in addition to or in substitution for any such penalty, any expense incurred in consequence of any breach or contravention of such regulation, or in the execution of any work directed by any such regulation to be executed by any person and not executed by him, whether performed by the local authority or by some contractor on its behalf, plus a surcharge of not more than fifteen *per centum* of such expense, shall be paid by the person committing such breach or failing to execute such work.

(3) The provision of section 41 shall apply to any sum recoverable under this section.

(4) Any regulation may further provide for the forfeiture to the local authority of any movable property used in the commission or contravention of any regulation, and for the seizure of any such property and of any property which there is reasonable ground to believe is evidence of any such contravention:

Provided that no regulation shall be valid which provides for forfeiture otherwise than upon conviction and by order of the Court.

(5) Any regulation may further provide for the disposal, whether by sale, destruction or otherwise howsoever, of any movable property which the local authority or any of its officers may have lawfully seized or become possessed of; and, in the case of disposal by way of sale, may provide for the sale of property under the value of one hundred ringgit otherwise than by public auction:

Provided that, where any property is disposed of pursuant to any such regulation otherwise than by way of destruction, the following provisions shall apply—

(a) reasonable steps shall be taken to enable the owner to make a claim;

(b) the owner shall, for a period of not less than three months from the date of sale, having the same right to the proceeds of any sale as he would have had to the property sold.

(6) Subsections (4) and (5) shall have effect without prejudice to any express provision of this Ordinance in relation to such matters.

(7) Where any regulation prohibits, restricts or regulates the doing of any act and such regulation requires any person to obtain a permit from a specified authority before the doing of such act, such regulation may provide for a deposit of such sum or the execution of a bond, with or without sureties, in such sum as may be prescribed in such regulation, such sum to be refunded, or such bond to be void, as the case may be, if the person to whom such permit is granted complies with all the conditions of such permit.

(8) Subject to the provisions of any Order made under section 63, the regulations contained in the Fourth Schedule shall, to the extent therein provided, apply to the areas specified in the First Schedule until replaced by regulations made under this section, and shall be deemed to be regulations made under this section.

## PART IX

### REPEAL, SAVING AND TRANSITIONAL PROVISIONS

#### **Repeal and saving**

**65.**—(1) The Ordinances specified in the first column of the Third Schedule are repealed to the extent specified in the second column thereof.

(2) Notwithstanding the repeal of the Ordinances effected by subsection (1), every permit in relation to the erection, construction and use of buildings granted or issued thereunder and in force prior to the commencement of this Ordinance shall be deemed to be granted or issued under this Ordinance, and any fees which have been paid in respect of any period still current when this Ordinance comes into operation shall be deemed to have been paid under the provisions of this Ordinance.

(3) Until and unless the relevant regulations are made under this Ordinance, the Buildings By-Laws 1994 shall continue to be in force until revoked.

(4) Any building owner, whose building has been certified as green building under any rating tools or certification before the commencement of Part IVA, shall register his building in accordance with the provisions of this Ordinance or the regulations made hereunder.

(5) Any prosecution, action, suit, claim, proceeding or inquiry which has been instituted, filed, commenced or made under the provisions of this Ordinance and is still pending and not finally disposed of or existing immediately before the date of commencement of the amended provisions shall be continued and be determined, or completed or disposed of in all respects under the provisions of this Ordinance as if such provisions had not been amended.

*[Ins. Cap. A224]*

**Fire requirements, fire alarms, etc.**

*[Sub. Cap. A224]*

**66.** Buildings which on the date of commencement of this Ordinance have been erected, or in the course of being erected or have not been erected but plans have been submitted and approved, and which according to the Building Regulations contained in the Fourth Schedule fall within the classification of place of assembly, shop, office, other residential buildings exceeding 18.5 metres and buildings which are classified as hazardous or special risks shall be modified or altered to comply with fire requirements, fire alarms, fire detection, fire extinguishment and fire fighting access as may be required within—

*[Am. Cap. A224]*

(a) one year from the date of commencement of this Ordinance, in the case of buildings up to three storeys; and

(b) three years from the date of commencement of this Ordinance, in the case of buildings exceeding three storeys.

**Power of local authority to extend period, etc., specified in section 66.**

**67.—(1)** Notwithstanding section 66, the local authority may where it is satisfied that it is justifiable to do so—

(a) allow an extension or further extensions of the period within which the requirements under fire requirements, fire alarms, fire detection, fire extinguishment and fire fighting access as may be required by the fire authority are to be complied with; or

*[Am. Cap. A224]*

(b) allow variations, deviations or exemptions as it may specify from the requirements of fire requirements, fire alarms, fire detection, fire extinguishment and fire fighting access.

*[Am. Cap. A224]*

(2) Any person aggrieved by the decision of the local authority under subsection (1) may within thirty days of the receipt of the decision appeal in writing to the Minister, whose decision shall be final.

**Power of Minister to make transitional provisions, *etc.***

**68.** The Minister may, by regulations, make such provision as he may consider necessary or expedient for the purpose of removing any difficulties occasioned by the coming into force of this Ordinance, and any such regulations may be so made so as to have effect as from the commencement of this Ordinance.



## *FIRST SCHEDULE*

### AREAS TO WHICH THE ORDINANCE APPLIES

(Sections 1(1) and 63(a))

#### PART I

##### CITY ADMINISTRATION

- (1) Commission of the City of Kuching North
- (2) Council of the City of Kuching South
- (3) Miri City Council

#### PART II

##### MUNICIPAL COUNCILS

- (1) Sibu Municipal Council
- (2) Bintulu Development Authority
- (3) Padawan Municipal Council
- (4) Kota Samarahan Municipal Council

#### PART III

##### DISTRICT COUNCILS

- (1) Bau District Council
- (2) Lundu District Council
- (3) Sri Aman District Council
- (4) Lubok Antu District Council
- (5) Betong District Council
- (6) Saratok District Council
- (7) Sibu Rural District Council
- (8) Kanowit District Council
- (9) Dalat and Mukah District Council
- (10) Marudi District Council
- (11) Subis District Council
- (12) Limbang District Council
- (13) Lawas District Council
- (14) Sarikei District Council
- (15) Maradong and Julau District Council
- (16) Matu and Daro District Council

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- (17) Kapit District Council
- (18) Serian District Council
- (19) Simunjan District Council
- (20) Gedong District Council
- (21) Siburan District Council
- (22) Sebuyau District Council

*[Sub. Cap. A224]*

**SECOND SCHEDULE**

*(Sections 1(3)(a) and 63(a))*

**(1) DWELLING HOUSES**

Except for the provision of separating walls and provision of fire hydrant, the provisions of other fire requirements and fire alarms, fire detection, fire extinguishment and fire fighting access under this Ordinance shall not apply to private dwelling houses, detached or semi-detached and terrace houses intended for single family occupancies.

*[Am. Cap. A224]*

**(2) BUILDING WORKS WHICH DO NOT REQUIRE  
APPROVAL OF PLANS AND SPECIFICATIONS**

Any building works carried out for or in connection with the following forming part of a bungalow, semi-detached, terraced or linked house used solely for residential purpose—

- (a) any simple awning or windowhood of light structure not exceeding 2 metres in length,
- (b) any orchid or flower shed or pergolas,
- (c) any dog kennel not exceeding 5 square metres in floor area,
- (d) any car shed with an aggregated total roof area not exceeding 50 square metres for any single dwelling unit capable of being entered by motor cars,

- (e) any lean-to drying shed with eaves not less than 2 metres from the boundary and not exceeding 50 square metres in roof area,
- (f) any gate and fence not exceeding 1.5 metres in height, and
- (g) any replacement of materials for existing building not involving structural alteration:

Provided that a minimum clearance of not less than 1.6 metres, unless otherwise allowed, is maintained and upon completion of the works, the local authority shall be notified in writing.

### **(3) TELECOMMUNICATION TOWERS**

Telecommunication towers, the plans for the erection thereof have been approved by the State Planning Authority under Part X of the Land Code [*Cap. 81 (1958 Ed.)*].

*[Am. Swk. L. N. 105/2005 w.e.f. 1.1.2005.]*

### **(4) DESIGNATED AREA AND RESETTLEMENT SCHEME AREA**

(1) All building works and buildings within a designated kampung area and Resettlement Scheme Area in any area under the jurisdiction of the local authorities named in the First Schedule to the Ordinance have been exempted from the provision of Part II and Part III of the Ordinance and the Building By-laws contained in the Fourth Schedule to the Ordinance:

Provided that the owner or occupier of the building shall, on completion of the building, notify the local authority in whose area the building is situated, of the erection of such building by furnishing the following:

- (a) name and identity card number of the owner;
- (b) address of the owner;
- (c) land title number, if any; and
- (d) sketch plan with measurement and simple description of the building.

(2) For the purpose of this paragraph—

“designated kampung area” shall mean any Native Communal Reserve declared under section 6 of the Land

Code [*Cap. 81 (1958 Ed.)*] including any extension thereof approved by the Minister; and

“Resettlement Scheme Area” means any area designated by the Director of Lands and Surveys, after in consultation with the Minister, for the resettlement of people.

**(5) GOVERNMENT BUILDINGS**

(1) All building works or buildings of or belonging to the Government are exempted from submission of plans and drawings under the Building by-laws contained in the Fourth Schedule of the Ordinance: Provided that—

(a) the plans and drawings of such building works or buildings are designed partially or wholly by the Public Works Department, Sarawak and approved by the Director (hereinafter referred to as the “Department”);

(b) the supervision of the building works and all works associated thereto is undertaken by the Director or by the local authority; and

(c) a Certificate of Completion shall be issued by the Director upon completion of the building works or buildings and shall be deemed as a certificate of fitness for occupation.

(2) The Department shall send a copy of the Certificate of Completion together with a set of the plans and drawings, within thirty days after the issuance of the Certificate, to the local authority having jurisdiction over the area where the building works or buildings are located.

(3) Notwithstanding Order 3(1), the Department shall be required to submit building plans in accordance with the requirements of Part VI and Part VII of the Building by-laws.

(4) For the purpose of this paragraph—

“Director” means the Director of Public Works, Sarawak and shall include his Deputy or any person duly authorized by him in writing to perform the functions and duties conferred upon him by this Order; and

“Government” means the Government of the Federation or the State of Sarawak and includes local authorities and any body corporate established under any state law in force in Sarawak.

*[Ins. Cap. A224]*

### *THIRD SCHEDULE*

*(Sections 63(a) and 65)*

#### REPEAL

| <i>1</i>                                                                                                                                                                                                                                                                                                                                                          | <i>2</i>                                                                                                                                                                       |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <i>Title of Legislation</i>                                                                                                                                                                                                                                                                                                                                       | <i>Extent of Repeal</i>                                                                                                                                                        |
| 1. <i>Ordinance</i>                                                                                                                                                                                                                                                                                                                                               |                                                                                                                                                                                |
| (a) The Kuching Municipal Ordinance ( <i>Cap. 116 (1958 Ed)</i> ) as modified by the City of Kuching Ordinance, 1988 ( <i>Ord. No. 2/88</i> ) to apply to the City of Kuching North.                                                                                                                                                                              | Section 104(1)(b), (c), (j), (k), (l), (m) and (n). Sixth Schedule - paragraphs (24) and (26).                                                                                 |
| (b) The Kuching Municipal Ordinance ( <i>Cap. 116 (1958 Ed)</i> ) as modified by the City of Kuching Ordinance, 1988 ( <i>Ord. 2/88</i> ) to apply to the City of Kuching South.                                                                                                                                                                                  | Section 104(1)(b), (c), (j), (k), (l), (m) and (n). Sixth Schedule - paragraphs (24) and (26).                                                                                 |
| (c) The Local Authority Ordinance ( <i>Cap. 117 (1958 Ed)</i> ) as amended by <i>Ord. No. 3/89</i> . (Except in so far as the Ordinance affects the areas of the Sibü and Miri Municipal Councils, Bintulu Development Authority, Kuching Rural and Sarikei District Councils specified in items (c) to (g) in column 1 of the First Schedule to this Ordinance). | (i) Sections 30(6), 35, 36, 37 and 41.<br>(ii) First and Second Schedules - all references to sections 35, 36, 37 and 41.                                                      |
| 2. <i>Subsidiary Legislation</i>                                                                                                                                                                                                                                                                                                                                  |                                                                                                                                                                                |
| (a) Kuching Municipal Bylaws (Vol. IV of 1948 Revised Edition of the Laws) as extended by <i>Ord. No. 10/64</i> .                                                                                                                                                                                                                                                 | Chapter 3 - (Buildings) (as amended by <i>Swk. L.G. 31/71</i> ) - in so far as it affects the areas specified in item (a) of column 1 of the First Schedule to this Ordinance. |

| <i>1</i>                                                                                                              | <i>2</i>                                                                                                                                                                       |
|-----------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <i>Title of Legislation</i>                                                                                           | <i>Extent of Repeal</i>                                                                                                                                                        |
| (b) Kuching Municipal Bylaws (Vol. IV of 1948 Revised Edition of the Laws) as extended by <i>Ord. No. 10/64</i> .     | Chapter 3 - (Buildings) (as amended by <i>Swk. L.G. 31/71</i> ) - in so far as it affects the areas specified in item (b) of column 1 of the First Schedule to this Ordinance. |
| (c) The Sibü Municipal Bylaws as extended by <i>Ord. No. 10/64</i> .                                                  | Chapter V - (Building Regulations) - in so far as it affects the areas specified in item (c) in column 1 of the First Schedule to this Ordinance.                              |
| (d) The Miri Municipal Bylaws as extended by <i>Ord. No. 10/64</i> .                                                  | Chapter V - (Buildings) - in so far as it affects the areas specified in item (d) in column 1 of the First Schedule to this Ordinance.                                         |
| (e) The Fourth Division (General) Bylaws as extended by <i>Ord. No. 10/64</i> .                                       | Chapter IV - (Streets and Buildings) - in so far as it affects the areas specified in item (e) in column 1 of the First Schedule to this Ordinance.                            |
| (f) The Kuching Rural District Council (Regulations of Building) Bylaws, 1962, as amended by <i>Swk. L.G. 26/80</i> . | The whole Bylaws in so far as they affect the areas specified in items (f) and (h) in column 1 of the First Schedule of this Ordinance.                                        |
| (g) The Sarikei Municipal Bylaws as extended by <i>Ord. No. 10/64</i> .                                               | Chapter V - (Buildings) - in so far as it affects the areas specified in item (g) in column 1 of the First Schedule to this Ordinance.                                         |
| (h) The First Division (General) Bylaws as extended by <i>Ord. No. 10/64</i> .                                        | Chapter V - (Streets and Buildings) - in so far as it affects the areas specified in item (i) in column 1 of the First Schedule to this Ordinance.                             |
| (i) The Batang Lupar District Council (Regulation of Building) Bylaws, 1960 ( <i>G.N.L. 52/60</i> ).                  | The whole Bylaws in so far as they affect the areas specified in item (j) in column 1 of the First Schedule to this Ordinance.                                                 |

|     |                                                                                               |                                                                                                                                                                                  |
|-----|-----------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| (j) | The Third Division (General) Bylaws as extended by <i>Ord. No. 10/64</i> .                    | Chapter VII - (Streets and Buildings) - in so far as it affects the areas specified in item (k) in column 1 of the First Schedule to this Ordinance.                             |
| (k) | The Limbang District Council (Regulation of Building) By- laws, 1960 ( <i>G.N.L. 36/60</i> ). | The whole Bylaws in so far as they affect the areas specified in item (l) in column 1 of the First Schedule to this Ordinance.                                                   |
| (l) | The First Division (General) Bylaws as extended by Ord. No. 10/64                             | Chapter V – (Streets and Buildings) – in so far as it affects the areas specified in item (m) in column 1 of the First Schedule to this Ordinance.                               |
| (m) | The First Division (General) Bylaws extended by Ord. No. 10/64                                | Chapter V – (Streets and Buildings) – in so far as it affects the areas specified in item (n) in column 1 of the First Schedule to this Ordinance.                               |
| (n) | The Second Division (General) Bylaws as extended by Ord. No. 10/64                            | Chapter VIII – (Kampung Regulations) – in so far as it affects the areas specified in item (o) in column 1 of the First Schedule to this Ordinance.                              |
| (o) | The Second Division (General) Bylaws as extended by Ord. No. 10/64                            | Chapter IV – (Streets and Buildings) – in so far as it affects the areas specified in item (p) in column 1 of the First Schedule to this Ordinance.                              |
| (p) | The Second Division (General) Bylaws as extended by Ord. No. 10/64                            | Chapter VIII – (Kampung Regulations) – in so far as it affects the areas specified in item (q) in column 1 of the First Schedule to this Ordinance.                              |
| (q) | The Third Division (General) Bylaws as extended by Ord. No. 10/64                             | Chapter VII – (Streets and Buildings) – in so far as it affects the areas specified in item (r) in column 1 of the First Schedule to this Ordinance.<br>[Am. Swk. L.N. 71/2001.] |

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- |                                                                        |                                                                                                                                                      |
|------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------|
| (r) The Binatang Municipal Bylaws as extended by Ord. No. 10/64        | Chapter V – (Building Regulations) – in so far as it affects the areas specified in item (s) in column 1 of the First Schedule to this Ordinance.    |
| (s) The Third Division (General) Bylaws as extended by Ord. No. 10/64  | Chapter VII – (Streets and Buildings) – in so far as it affects the areas specified in item (t) in column 1 of the First Schedule to this Ordinance. |
| (t) The Third Division (General) Bylaws as extended by Ord. No. 10/64  | Chapter VII – (Streets and Buildings) – in so far as it affects the areas specified in item (u) in column 1 of the First Schedule to this Ordinance. |
| (u) The Third Division (General) Bylaws as extended by Ord. No. 10/64  | Chapter VII – (Streets and Buildings) – in so far as it affects the areas specified in item (v) in column 1 of the First Schedule to this Ordinance. |
| (v) The Fourth Division (General) Bylaws as extended by Ord. No. 10/64 | Chapter IV – (Streets and Buildings) – in so far as it affects the areas specified in item (w) in column 1 of the First Schedule to this Ordinance.  |
| (w) The Fourth Division (General) Bylaws as extended by Ord. No. 10/64 | Chapter IV – (Streets and Buildings) – in so far as it affects the areas specified in item (x) in column 1 of the First Schedule to this Ordinance.  |
| (x) The Fifth Division (General) Bylaws as extended by Ord. No. 10/64  | Chapter IV – (Streets and Buildings) – in so far as it affects the areas specified in item (y) in column 1 of the First Schedule to this Ordinance.  |
| <i>[Am. Swk. L.N. 71/2001.]</i>                                        |                                                                                                                                                      |
| (y) The First Division (General) Bylaws as extended by Ord. No. 10/64  | Chapter V – (Streets and Buildings) – in so far as it affects the areas specified in item (z) in column 1 of the First Schedule to this Ordinance.   |

*[Am. Swk. L.N. 163/2004.]*



## *FOURTH SCHEDULE*

(Sections 64(8), 66 and 67)

### **BUILDING BY-LAWS**

#### ARRANGEMENT OF BY-LAWS

##### PART I

##### SUBMISSION OF PLANS FOR APPROVAL

###### *Bylaw*

1. Submission of plans for approval
2. Return of plan
3. Supervision of work
4. Plans to be signed
5. Withdrawal or change of qualified person
6. Plans to be deposited in triplicate
7. Scale of plans
8. Plans required
9. Special permission to commence building operation
10. Plans for alterations
11. Specifications
12. Details and calculations of structural plans
13. Power of local authority to reject structural plans and calculations
14. Permits
15. Temporary permits
16. Advertisement hoardings
17. Materials not to be deposited in a street without permission
18. Notice of commencement or resumption of building operations
19. Notice of completion of setting out
20. Notice of completion of excavation for foundations

*Bylaw*

21. Occupation permit
22. Temporary occupation permit
23. Partial occupation permit
24. Offence to occupy a building without a permit
25. Fees for consideration of plans and permits

## PART II

## SPACE, LIGHT AND VENTILATION

26. Open space to be provided
27. Open space not to be altered or roofed
28. Building site, line, height, class and design
29. Balcony projections
30. Access from a street
31. Width of footway
32. Natural lighting and ventilation
33. Air-wells
34. Mechanical ventilation and air-conditioning
35. Minimum areas in rooms in residential buildings
36. Minimum dimensions of latrines, water-closets and bathrooms
37. Height of rooms in residential buildings, shophouses, schools, *etc.*
38. Height of rooms in places of public resorts
39. Height of rooms, basement, *etc.* in other buildings
40. Projections over a verandah-way

## PART III

## TEMPORARY WORKS IN CONNECTION WITH BUILDING OPERATIONS

41. Commencement of building operation
42. Catch platform
43. Safety net

*Bylaw*

- 44. Responsibility of person granted temporary permits
- 45. Cancellation of temporary permits
- 46. Vehicular access to site
- 47. Rising mains to be installed progressively

PART IV

STRUCTURAL REQUIREMENTS

- 48. Building materials
- 49. General requirements of loading
- 50. Dead and imposed loads
- 51. Dead loads calculated from weights of materials used
- 52. Basement walls and floors
- 53. Foundations
- 54. Reinforced concrete foundations
- 55. Foundations below invert of drains
- 56. Disappropriate collapse
- 57. Structure above foundations

PART V

CONSTRUCTIONAL REQUIREMENTS

- 58. Building site
- 59. Drainage of subsoil
- 60. Protection against soil erosion, *etc.*
- 61. Prevention of dampness
- 62. Nominal thickness of walls
- 63. Party walls
- 64. Openings in party walls
- 65. Recess
- 66. Chases
- 67. Underpinning

*Bylaw*

68. Coping, *etc.* to be impervious
69. Projections in brickwork
70. Measurement of the length of a wall
71. Use of 100 millimetres brickwork and concrete blocks in load-bearing
72. External panel walls
73. Non load-bearing partition
74. Timber built into party walls
75. Fences and boundary walls
76. Cooking facilities in residential buildings
77. Fire places
78. Boilers, fireplaces, forges and incinerators in factories
79. Combustible materials adjoining smoke flues
80. Timber buildings and floors
81. Bearing for joists
82. Space below floors to be ventilated
83. Dimensions of staircases
84. Handrails
85. Maximum flights
86. Winders
87. No obstruction in staircases
88. Lighting and ventilation of staircases
89. Enclosure of staircases in a shop
90. Use of timber staircases
91. Timber roofs
92. Roof covering and drainage
93. Accessible flat roofs, balconies, *etc.*
94. Access to roof space
95. Refuse chutes and alternate means for disposal of refuse

*Bylaw*

- 96. Change of use of building
- 97. Design and construction of refuse chutes
- 98. Requirements for refuse receptacle chambers
- 99. Access to refuse receptacle chambers
- 100. Pipes and service ducts
- 101. Lifts
- 102. Storage of gas cylinders
- 103. Swimming pools
- 104. Steps and footway
- 105. Opening into swimming pool
- 106. Depth of water
- 107. Location of boards
- 108. Changing rooms
- 109. Footbaths and showers
- 110. Private residential swimming pools
- 110A. Building requirements for disable persons
- 110B. Special place to house air-conditioning plants or units
- 110C. Drying area
- 110D. Exemption from bylaw 110B or 110C
- 110E. Notice to require compliance with bylaws 110B and 110C

PART VI

FIRE REQUIREMENTS

- 111. Interpretation
- 112. Designation of purpose groups
- 113. Rules of measurement
- 114. Provisions of compartment walls and compartment floors

*Bylaw*

115. Restricted size of shop compartments for unsprinklered and fully sprinklered buildings
116. Floor in building exceeding 30 metres in height to be constructed as compartment floor
117. Other walls and floors to be constructed as compartment walls or compartment floors
118. Separation of fire risk areas
119. Fire appliance access
120. Separating walls
121. External walls
122. Beam or column
123. Cladding on external wall
124. Reference to Schedule F
125. Relevant boundary
126. Construction of separating wall
127. Special requirements as to compartment walls and compartment floors
128. Horizontal and vertical barriers of the external walls
129. Provisions of excess flow valve
130. Protected shafts
131. Ventilation to lift shafts
132. Openings in lift shafts
133. Smoke detectors for lift lobbies
134. Emergency mode of operation in the event of mains power failure
135. Fire mode of operation
136. Protected shafts as ventilating duct
137. Protected shafts consisting of staircase
138. Stages in places of assembly
139. Open stages
140. Fire precautions in air-conditioning systems

*Bylaw*

141. Fire-stopping
142. Fire doors in compartment walls and separating walls
143. Door closers for fire doors
144. Buildings to provide escape routes
145. Measurement of travel distance to exits
146. Exits to be accessible at all times
147. Staircases serving open balcony approaches
148. Storey exits
149. Exits from flat or maisonette
150. Staircase exits from buildings
151. Dead-end corridors to be fire resistant
152. Entrance to basement staircase not to be within hall or lobby
153. Gas metres or regulators not to be installed within escape route, *etc.*
154. Location of staircase tower
155. Staircases
156. Exit route
157. Egress through unenclosed openings
158. Horizontal exits
159. Emergency exit signs
160. Escape staircases be legibly indicated
161. Exit doors
162. Arrangement of storey exits
163. Calculation of occupancy loads
164. Computing storey exit width
165. Computing number of staircases and staircase width
166. Exits for institutional and places of assembly
167. Classification of places of assembly

*Bylaw*

168. Space standards for calculating occupancy loads
169. Width of means of egress
170. Rate of discharge
171. Exit details for places of assembly
172. Seating
173. Gangway in places of assembly
174. Exit doors in places of assembly
175. Notice affixed to door or gate
176. Travel distance in place of assembly
177. Enclosing means of escape in certain buildings
178. External staircase
179. Openings in adjacent walls not permitted
180. Moving walks
181. Power operated doors as means of egress
182. Building with single staircase
183. Staircases to reach roof level
184. Staircase carried up to underside of roof covering or separated from roof spaces
185. Smoke lobbies
186. Protected lobbies
187. Ventilation of staircase enclosures
188. Ventilation of staircase enclosures in buildings not exceeding 18 metres
189. Ventilation of staircase enclosures in buildings exceeding 18 metres
190. Staircase enclosures below ground level
191. Pressurized system for staircases
192. Atrium
193. Restriction of spread of flame
194. Classification of restriction of flame over surface wall and ceiling



*Bylaw*

195. Classification of interior finish materials
196. Classification of surface of wall or ceiling
197. Exceptions relating to ceilings
198. Reference to roofs
199. Reference to buildings
200. Construction of roofs
201. Roofing materials
202. Category designation for fire penetration and spread of flame on roof surface
203. Fire resistance
204. Additional requirements
205. Height of buildings
206. Single storey buildings
207. Fire resistance of structural member
208. Compartment wall separating flat and maisonette
209. Application of these bylaws to floors
210. Floor area and capacity of buildings and compartments
211. Test of fire resistance
212. Fire resistance for walls
213. Fire resistance for floors above ground floor
214. Fire resistance for any element of structure

PART VII

FIRE ALARMS, FIRE DETECTION, FIRE EXTINGUISHMENT AND FIRE  
FIGHTING ACCESS

215. Detecting and extinguishing fire
216. Automatic system for hazardous occupancy
217. Portable extinguishers
218. Sprinkler valves
219. Fire installation to be tested by Fire Authority

*Bylaw*

- 220. Means of access and fire fighting in buildings over 19 metres high
- 221. Balcony access corridors as fire fighting lobby in residential buildings
- 222. Installation and testing of dry rising system
- 223. Installation and testing of wet rising system
- 224. Wet or dry rising system for buildings under construction
- 225. Foam inlets
- 226. Underground structures and windowless buildings to have foam inlets
- 227. Fixed installations
- 228. Special hazards
- 229. Fire alarms
- 230. Command and control centre
- 231. Voice communication system
- 232. Electrical isolation switch
- 233. Emergency power supply to lifts, *etc.* by separate sub-circuits
- 234. Special requirements for fire alarm systems
- 235. Fire fighting access lobbies
- 236. Fire lifts
- 237. Standard required
- 238. Approval of Fire Authority
- 239. Certificate on completion
- 240. Water storage
- 241. Markings on wet riser, *etc.*
- 242. Smoke and heat venting
- 243. Natural draught smoke vent
- 244. Smoke vents to be adequate to prevent dangerous accumulation of smoke
- 245. Smoke vents to be openable by Fire Services Department.
- 246. Lighting facilities to be provided in exit passage way, staircases, *etc.*
- 247. Emergency power system

PART VIII  
MISCELLANEOUS

248. Malaysian Standard Specification and Code of Practice to prevail over Foreign National Standards and Code of Practice

249. Failures to buildings

|            |   |                                                                                                  |
|------------|---|--------------------------------------------------------------------------------------------------|
| SCHEDULE A | — | Fees for consideration of plans, permits, <i>etc.</i>                                            |
| SCHEDULE B | — | Forms.                                                                                           |
| SCHEDULE C | — | Mechanical Ventilation and Air-Conditioning System.                                              |
| SCHEDULE D | — | Standards for Structural Requirements.                                                           |
| SCHEDULE E | — | Designation of Purpose Groups.                                                                   |
| SCHEDULE F | — | Calculation of Permitted Limits of Unprotected Areas.                                            |
| SCHEDULE G | — | Maximum Travel Distances.                                                                        |
| SCHEDULE H | — | Classification of Restriction of Spread of Flame Over Surfaces of Walls and Ceilings.            |
| SCHEDULE I | — | Limits of Compartments and Minimum Periods of Fire Resistance for Elements of Structure.         |
| SCHEDULE J | — | Table of Requirements for Fire Extinguishment Alarm Systems and Emergency Lighting.              |
| SCHEDULE K | — | Schedule showing Minimum Number of Exit Door Way from a Room and Required Minimum Width thereof. |

## PART I

## SUBMISSION OF PLANS FOR APPROVAL

**Submission of plans for approval**

1.—(1) All plans for buildings submitted to the local authority for approval under section 8 of the Ordinance shall—

(a) be deposited at the office of the local authority together with the fees prescribed for the submission of such plans in accordance with Schedule A;

(b) bear upon them a statement showing for what purpose the building, for which the plans are submitted, is to be erected and used;

(c) bear the certification of the qualified persons on each and every plan together with Form A or B, as the case may be, of Schedule B for which they are respectively responsible;

(d) have attached thereto a copy of the relevant site plan or draft subdivision plan approved by the competent planning authority where applicable, unless otherwise exempted under section 63 of the Ordinance;

(e) have attached thereto extracts of document of title to the land; and

(f) be accompanied with such other documents as the local authority may require.

(2) Every plan, drawing or calculation in respect of any building shall be submitted by a qualified person.

**Return of plan**

2.—(1) A local authority may, if it is of the view that any plan, drawing or calculation is beyond the competence of such qualified person return such plan, drawing or calculation.

(2) A local authority shall accept any returned plan, drawing or calculation if the same were resubmitted together with a certificate from the relevant competent authority responsible for registering such qualified person, certifying that such plan, drawing or calculation is within the competence of such qualified person.

### **Supervision of work**

3. Where under these Bylaws any plan, drawing or calculation in relation to any building is required to be submitted by qualified person, no erection or continued erection of that building shall take place unless that qualified person or any person duly authorized by him undertakes the supervision of the erection and the setting out, where applicable, of that building:

Provided that no person other than an appropriately qualified person shall undertake the supervision of concreting, piling, prestressing, tightening of high-friction grip bolts or other critical structural works of that building.

### **Plans to be signed**

4.—(1) All plans submitted shall be signed by the qualified person and by the owner or his agent and shall bear the full address of the owner.

(2) The local authority may, if satisfied that the owner of the premises has refused to or has failed to execute any work which is required under the Ordinance to be executed by him, direct the owner of the premises in writing to execute such work.

### **Withdrawal or change of qualified person**

5.—(1) The qualified person submitting the plans shall be responsible for the proper supervision of the works and shall continue to be so responsible until the completion of the works unless—

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

*[Am. Swk. L.N. 95/2001.]*

(b) the local authority agrees to accept his withdrawal or replacement at the request of the owner provided that the owner shall be liable for all acts, omissions, neglects, defaults, claims or demands of the qualified person up to the date of his withdrawal or replacement.

*[Am. Swk. L.N. 95/2001.]*

(2) Where the local authority agrees to accept a qualified person's withdrawal or replacement under paragraph (1)(b) the works shall not commence or continue until another qualified person is appointed to take over.

*[Am. Swk. L.N. 95/2001.]*

(3) Upon the appointment of the second qualified person by the owner to take over the work, the second qualified person shall be held responsible for all designs and construction of the works in its entirety and shall be required before taking over—

(a) to have satisfied himself that the design and construction works to be taken over by him are sound; and

(b) to have carried out the necessary review of the design, inspection and testing of works and/or order such remedial works as may be required to enable him to take over such responsibilities.

(4) Where any qualified person who has submitted any plan, drawing or calculation in respect of any building has died or become bankrupt or cannot be found or has been deregistered from the register or for any other reason ceased to practise, the owner shall as soon as practicable appoint another qualified person to act for him and to submit adequate evidence to the local authority of the circumstances.

#### **Plans to be deposited in triplicate**

6.—(1) All building plans shall be deposited in triplicate or in as many copies as may be required by the local authority.

(2) One set of the approved plan shall be returned to the submitting person.

(3) If the plans are disapproved, one set of such plans shall be returned with a statement explaining the reasons for disapproval.

(4) Nothing in this bylaw shall prohibit the depositing of additional sets of plans if it is considered that by so doing the work of the local authority may be expedited.

### Scale of plans

7.—(1) All plans shall be drawn to the following scales—

- |                                            |   |                                                                                                                                                                                                                                                                                                                                                                                         |
|--------------------------------------------|---|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| (a) site plans                             | — | not less than 1:1000                                                                                                                                                                                                                                                                                                                                                                    |
| (b) key or location plans                  | — | any convenient scale                                                                                                                                                                                                                                                                                                                                                                    |
| (c) all other general building plans       | — | not less than 1:100<br>except in special cases where the size of the building renders drawings to this scale to be impracticable to accommodate within the limitations of paper sizes or when the drawings are of unwieldy dimensions, the local authority may use its discretion to permit plans to be submitted to a smaller scale but in no case shall the scale be less than 1:200. |
| (d) sketch plans for approval in principle | — | not less than 1:200                                                                                                                                                                                                                                                                                                                                                                     |
| (e) structural plans                       | — | 1:100 minimum for floor and framing plans.<br>1:30 minimum for beam and slab details. As appropriate for other details.                                                                                                                                                                                                                                                                 |

(2) All plans submitted in respect of any building shall include title block which bears the description of the project, locality, the logo and name of the firm of the submitting person. This shall appear in ink in the original tracing.

(3) Notwithstanding paragraph (1), all plans may be drawn in International System of Units.

### Plans required

8.—(1) All plans submitted in respect of any building shall, unless inapplicable, contain the following—

- (a) A site plan showing—

- (i) the site of the proposed building lot together with the lot number and the section number;
  - (ii) the means of access to the site from the street and the name of the street,
  - (iii) the distance from the centre and side of roadway distinctly figured on one of such plans;
  - (iv) where required by the local authority the dimensions of the lot;
  - (v) the complete lines of surface water drains and sewers with arrows indicating the direction of flow, the point of discharge of the proposed drains and sewers, the drains and water courses, with their sizes, into which the surface water will discharge, clearly indicated;
  - (vi) lines of permanent drainage of the site with arrows indicating the direction of flow, the drains and water courses into which they will discharge and their sizes;
  - (vii) the dimensions of clearances between the proposed building and the boundaries;
  - (viii) all lines of proposed adjustments of land or buildings for street, river or drainage improvements and such like where applicable showing the width of such new street or proposed new street and its connection with the nearest public street;
  - (ix) existing and proposed ground level of the site including the existing ground level of the adjacent land; and
  - (x) the location of existing fire hydrants and size of water mains available within 100 metres of the proposed buildings.
- (b) A floor plan of each floor except when other floors are repetitive or are identical floors, containing the following information—
- (i) figured dimensions of the lengths and breadths of the building and rooms and thickness of walls thereof;



(ii) figured dimensions of all door and window openings, the clear daylight area of airwells, back areas and open spaces of the building;

(iii) figured dimensions between walls, piers and stanchions on the foundation plan of the building;

(iv) the names and uses of rooms; and

(v) the floor area, type of manufacture and storage.

(c) Cross, longitudinal and other sections to clearly delineate the construction of the building and showing—

(i) the existing ground level and proposed new ground level if the level of the site is to be raised or lowered;

(ii) the level of street, roadside drain and verandah-way (if the building abuts a street);

(iii) the width and depth of foundations and thickness of walls, partitions and floors thereof where required;

(iv) the height of storeys, staircases, doors, windows and ventilating openings thereof;

(v) the sizes, position and direction of floor joists and beams and the construction of the roof thereof; and

(vi) the materials to be used in the construction of the structure.

(d) Front, rear and side elevations showing—

(i) the levels of adjoining footways, verandah-ways, roads and the levels of the proposed counterparts;

(ii) part elevations of existing adjoining buildings showing their floor levels, main copings, parapets and verandah heights; and

(iii) the materials proposed for the walls, window and roof, if applicable and visible.

(2) The qualified person or owner or occupier, as the case may be, shall provide the local authority with such further relevant information as the local authority may require.

(3) All plans shall either be in clear indelible prints or drawn in black with differences of materials shown in distinct colours and all existing structures in neutral tints.

#### **Special permission to commence building operation**

9.—(1) The local authority may in writing grant special permission to commence building operations shown in the building plan notwithstanding that it has not been approved in respect of the structural elements of the building, if the building operation is carried out under the supervision of the qualified person submitting such plan who shall ensure that the building is being erected in accordance with the provisions of the Ordinance or any subsidiary legislation made thereunder and that he undertakes to accept full responsibility.

(2) The granting of any permission under paragraph (1) shall not deprive the local authority of its power to give written directions in respect of such building.

(3) The local authority may amend, suspend or in the event of failure to comply with any written direction issued under paragraph (2), revoke the permission granted under paragraph (1) and require the building operation to cease.

#### **Plans for alterations**

10.—(1) In plans submitted for additions or alterations, including a subdivision of rooms, to a building, the parts, if any, of the building to be removed shall be shown in dotted lines and coloured yellow and new work shall be fully coloured in red.

(2) All existing surface water and foul water drains and sewers, windows and doors and all openings for light and ventilation of the building shall be shown on such plans.

#### **Specifications**

11. If so required by the local authority plans submitted for approval shall be accompanied by a specification of all materials proposed to be used.

### **Details and calculations of structural plans**

12.—(1) One copy of the detailed structural plans of the proposed building together with a legible copy of the structural calculations for the same shall be submitted before the commencement of construction.

(2) The detailed structural plans shall bear a certificate by the qualified person as in Form A or B of Schedule B to the effect that the details are in accordance with these Bylaws and that the submitting person accepts full responsibility.

(3) All structural plans shall be clearly marked to indicate the imposed loads for which each floor system or each part has been designed.

### **Power of local authority to reject structural plans and calculations**

13. Notwithstanding bylaw 12(2), the local authority may examine and in so doing may reject any structural plans or calculations which are not in accordance with these Bylaws and if it rejects such plans or calculations may require such qualified person to resubmit new structural plans or calculations in respect of the rejected portion.

### **Permits**

14.—(1) Sketch plans for minor erections, minor alterations and additions may be submitted in lieu of approved plans and permits may be issued as authority to carry out such work if they comply with the requirements of these Bylaws, provided that if in the opinion of the local authority the works involved require the submission of normal building plans, such plans shall be submitted in accordance with these Bylaws.

(2) Permits may be issued on such terms and conditions as the local authority thinks fit for the erection of any fence which encroaches on a footway.

### **Temporary permits**

15.—(1) Subject to the payment of the fees prescribed in Schedule A and a deposit as the local authority may require, a temporary permit for a limited period where required may be issued by the local authority for the following purposes—

- (a) the erection of a shed for shows or place of worship;

(b) the erection of a builders' working shed or a store or other shed to be used in connection with the building works;

(c) the depositing of building materials on streets;

*[Am. Swk. L. N. 95/2001.]*

(d) the erection of scaffolding on a street;

(e) the erection of staging, framework, platform or superstructure of any kind on a roof abutting a street; and

(f) the erection of hoardings on streets in accordance with bylaw 16.

(2) Subject to bylaw 44(2), the deposit under paragraph (1) may be refunded either in full or in part to the temporary permit holder after the expiry or revocation of the temporary permit.

(3) A temporary permit may be issued at the discretion of the local authority for the erection of a temporary building and shall be subject to all of the conditions enumerated in bylaw 44.

(4) Plans or sketch plans in accordance with the requirements of the local authority shall be submitted for temporary permits under this bylaw.

#### **Advertisement hoardings**

16.—(1) The permit for the erection of hoardings or any framings for the display of advertisements or signboards shall be issued at the discretion of and subject to any conditions that may be imposed by the local authority.

(2) Plans or sketch plans of such hoardings or framings shall be submitted in accordance with the requirements of the local authority.

(3) The plans must be certified by the person submitting them to the effect that the proposed hoarding can safely be supported by the structure onto which it is to be constructed and that he accepts full responsibility.

#### **Materials not to be deposited in a street without permission**

17.—(1) No person shall deposit any building materials in any street without a temporary permit issued under bylaw 15(1).

(2) The fee for such permit shall be that prescribed in Schedule A.

(3) The person to whom such permit is issued shall at his own expense cause such materials to be sufficiently fenced and enclosed until the materials are removed or otherwise made secure to the satisfaction of the local authority.

(4) Such materials shall be suitably illuminated during the hours of darkness.

#### **Notice of commencement or resumption of building operations**

18.—(1) Notice of the intention to commence or resume the erection of a building required under section 8(13) of the Ordinance shall be made in Form C of Schedule B 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 C of Schedule B shall be given before the work may be commenced or resumed.

#### **Notice of completion of setting out**

19.—(1) As soon as the setting out of the building has been completed, the qualified person shall give written notice to the local authority in Form D of Schedule B certifying either that the setting out has been carried out in accordance with the approved site plan or, if there has been any deviation from the approved site plan, that he will undertake to submit the required number of amended site plans for approval before the completion of the building.

(2) In either event, the qualified person shall certify that he accepts full responsibility for ensuring that all town planning and building requirements are complied with in accordance with any written law relating to town planning and these Bylaws.

#### **Notice of completion of excavation for foundation**

20. As soon as the excavation for the foundation of a building has been completed the qualified person shall give written notice to the local authority in Form E of Schedule B.

#### **Occupation permit**

21.—(1) An occupation permit for occupation of a building in Form G of Schedule B shall be issued when—

(a) the qualified persons during the course of the work have certified in Form F of Schedule B that they have supervised the erection of the building, that to the best of their knowledge and belief the building has been constructed in accordance with these Bylaws and any conditions imposed by the local authority and that they accept full responsibility for those portions which they are respectively concerned with and the local authority or an officer authorized by it in writing for that purpose has inspected the building; and

(b) all essential services, including access roads, landscape, car parks, drains, sanitary, water and electricity installation, fire lifts, fire hydrant, fire protection installation, life safety requirements and others where required, sewerage and refuse disposal requirements have been provided.

(2) Nothing contained in this bylaw shall prevent the local authority, or any officer, authorized by it in writing for the purpose from inspecting any building works at any stage thereof and calling attention to any deviation from the approved plan or non-compliance with any provision of the Ordinance and of these Bylaws which he may observe and from giving notice in writing ordering such deviation to be rectified.

#### **Temporary occupation permit**

22.—(1) Subject to payment of the fees prescribed in Schedule A, the local authority may, after imposing a deposit either in cash or bank guarantee at the fixed amounts in its discretion issue a permit for the temporary occupation of a building in Form H of Schedule B for a period not exceeding six months in cases where only minor deviations from the approved building plans had been made and pending full compliance with the requirements of the local authority before the issue of an occupation permit.

(2) Where temporary occupation permit under paragraph (1) is issued and the owner of the building does not fully comply with the requirements as imposed, the local authority may make use of the deposit for the purpose of complying with the said requirements.

#### **Partial occupation permit**

23.—(1) The local authority may in its discretion issue a partial occupation permit in Form I of Schedule B for the occupation of any completed part of a building and may impose any conditions that it deems necessary in the public interest:

Provided that no such permit shall be issued if—

- (a) no application has been made within the period of construction;
- (b) all essential services, including access roads, landscape, car parks, drains, sanitary, water and electricity installations and supply, fire lifts, fire hydrant, fire protection installation, life safety requirements and others where required, sewerage and refuse disposal requirements have not been provided; and
- (c) the occupation of such part or parts of a partially completed building will prejudice public health or safety.

(2) A partial occupation permit once issued shall remain effective until the whole of the building is completed and an occupation permit is issued.

#### **Offence to occupy a building without a permit**

24. No person shall occupy or permit to be occupied any building or any part thereof unless an occupation permit, a partial occupation permit or a temporary occupation permit has been issued under these Bylaws for such building and any failure to comply with this bylaw shall render such person guilty of an offence: Penalty, a fine of not exceeding ten thousand ringgit and, in the case of a continuing offence to a further fine of not exceeding three hundred ringgit per day during which the offence is continued after notice to cease occupying the building has been issued on such person.

*[Am. Swk. L.N. 95/2001.]*

#### **Fees for consideration of plans and permits**

25. Fees in accordance with Schedule A shall be paid by persons who submit plans and specifications for approval in respect of buildings to be constructed or altered or for the issue of permits or temporary permits in accordance with these Bylaws.

### **PART II**

#### **SPACE, LIGHT AND VENTILATION**

##### **Open space to be provided**

26. Every building which is erected shall have directly attached thereto an open space exclusively belonging thereto of such dimensions and requirements as shall be approved by the local authority.

**Open space not to be altered or roofed**

27. Whenever any open space has been provided for in connection with any building, no person shall without the approval in writing of the local authority—

(a) make or maintain or permit to be made or maintained any alteration in such open space; or

(b) construct or maintain or permit to be constructed or maintained a roof over any portion thereof so as to diminish the area of such open space.

**Building site, line, height, class and design**

28.—(1) The local authority shall not approve any plan submitted pursuant to section 8 of the Ordinance relating to buildings, unless the building site, line, height, class and purposes are consistent and in conformity with those recommended by the competent planning authority under section 3 of the Ordinance.

(2) The local authority may by notice in writing require the owner or any person acting in contravention of an approved scheme of the competent planning authority or any of the provisions of this Part, to remedy the contravention or otherwise to do such works that are needed to comply with the requirements as imposed under this Part.

**Balcony projections**

29. Balcony projections with roofs or awning not exceeding 1.8 metres in depth from the external wall of the main building within the building line area may be allowed. The sides of the balcony may be walled-up, provided that the walled-up area shall not be more than 60% of the total area of the vertical plans of the projections.

**Access from a street**

30. Every building to be erected on a site which does not front a street shall have access from a street and the means, nature and extent of the access shall be in accordance with the layout plan approved by the competent planning authority.



### **Width of footway**

31.—(1) The width of any verandah-way or uncovered footway fronting shophouses shall not be less than 3 metres but piers or columns to a maximum depth of 0.6 metre from the boundary of the street may be permitted on such verandah-way or uncovered footway.

(2) The width of the verandah-way or uncovered footway shall be measured from the boundary of the street to the wall of other part (not being an outside verandah pier) of the building nearest the street and all dimensions referred to in this bylaw shall be measured at the pavement level of the verandah or uncovered footway.

(3) For the purpose of this bylaw, any step, threshold or other structure appurtenant to a building shall be deemed to be part of the building though not directly connected therewith.

(4) The level of any foot-way shall be uniform and no alteration shall be made thereto without the approval of the local authority. Where there is a change in the levels along the footway between adjoining lots there shall be provided with steps with risers not exceeding 150 millimetres and treads not less than 275 millimetres or a pedestrian ramp of a gradient not exceeding one in ten.

(5) Where a service road is provided the footway required to be provided and constructed shall follow the line of the service road.

### **Natural lighting and ventilation**

32.—(1) Every room designed, adapted or used for residential, business or other purposes except hospitals and schools shall be provided with natural lighting and natural ventilation by means of one or more windows or doors opening to the exterior having a total area of not less than 10% of the clear floor area of such room and shall have openings capable of allowing a free uninterrupted passage of air of not less than 5% of such floor area.

(2) Every room used for the accommodation of patients in a hospital shall be provided with natural lighting and natural ventilation by means of one or more windows having a total area of not less than 15% of clear floor area of such room and shall have openings capable of allowing a free uninterrupted passage of air of not less than 7½% of such floor area.

(3) Every room used for the purpose of conducting classes in a school shall be provided with natural lighting and natural ventilation by means of one or more windows having a total area of not less than 20% of clear floor area of such rooms and shall have openings capable of allowing a free uninterrupted passage of air of not less than 10% of such floor area.

(4) Every water-closet, latrine, urinal or bathroom shall be provided with natural lighting and natural ventilation by means of one or more openings having a total area of not less than 0.2 square metre per water-closet, urinal, latrine or bathroom and such openings shall be capable of allowing a free uninterrupted passage of air.

#### **Air-wells**

33.—(1)(a) The minimum size of each air-well provided in all buildings shall unless the local authority otherwise directs be as follows—

- (i) for air-wells serving up to 2 storeys in height, 7 square metres;
- (ii) for air-wells serving up to 4 storeys in height, 9 square metres;
- (iii) for air-wells serving up to 6 storeys in height, 11 square metres;
- (iv) for air-wells serving up to 8 storeys in height, 13 square metres; and
- (v) for air-wells serving more than 8 storeys in height, 15 square metres or more as required by the local authority.

(b) The minimum width of such air-wells in any direction shall be 2.5 metres.

(2) (a) The minimum size of each air-well for lavatories, water-closets and bathrooms shall be as follows—

- (i) for air-wells serving up to 4 storeys in height, 4 square metres;
- (ii) for air-wells serving up to 6 storeys in height, 4.5 square metres;
- (iii) for air-wells serving up to 8 storeys in height, 5 square metres; and

(iv) for air-wells serving more than 8 storeys in height, 5.5 metres.

(b) The minimum width of such air-wells in any direction shall be 2 metres.

### **Mechanical ventilation and air-conditioning**

34.—(1) When permanent mechanical ventilation or air-conditioning is intended, the relevant building bylaw relating to natural ventilation, natural lighting and heights of rooms may be waived at the discretion of the local authority.

(2) Any application for the waiver of the relevant bylaw shall only be considered if in addition to the permanent air-conditioning system there is provided alternative approved means of ventilating the air-conditioned enclosure, such that within half an hour of the air-conditioning system failing, not less than the stipulated volume of fresh air specified hereinafter shall be introduced into the enclosure during the period when the air-conditioning system is not functioning.

(3) The provisions of Schedule C shall apply to buildings which are mechanically ventilated or air-conditioned.

(4) Where permanent mechanical ventilation is provided for and maintained in accordance with the requirements of Schedule C, the provisions of the bylaws relating to natural ventilation and natural lighting shall not apply.

### **Minimum areas in rooms in residential buildings**

35.—(1) The area of the first habitable room in a residential building shall be not less than 11 square metres, the second habitable room be not less than 9.5 square metres and all other rooms be not less than 6.5 square metres in area.

(2) The width of every habitable room in a residential building shall be not less than 2 metres.

(3) The area and width of a kitchen in a residential building shall be not less than 4.5 square metres and 1.5 metres respectively.

### **Minimum dimensions of latrines, water-closets and bathrooms**

36. In all buildings, the sizes of latrines, water-closets and bathrooms shall be—

(a) in the case of latrines or water-closets with pedestal-type closet fittings, not less than 1.5 metres by 0.75 metre;

- (b) in the case of water-closets with fittings other than pedestal-type closet fittings, not less than 1.25 metres by 0.75 metre;
- (c) in the case of bathrooms, not less than 1.5 square metres with a width of not less than 0.75 metre; and
- (d) in the case of bathrooms with closet fittings, not less than 2 square metres with a width of not less than 0.75 metre.

**Height of rooms in residential buildings, shophouses, schools, etc.**

37.—(1) The height of rooms in residential buildings other than shophouses shall be—

- (a) for living rooms and bedrooms, not less than 2.8 metres;
- (b) for kitchens, not less than 2.5 metres; and
- (c) for bathrooms, water-closets, latrines, porches, balconies, verandahs, garages and the like, not less than 2.25 metres.

(2) The average height of rooms with sloping ceilings in residential buildings other than shophouses shall be—

- (a) for living rooms and bedrooms, not less than 2.8 metres;
- (b) for kitchens, not less than 2.5 metres; and
- (c) for bathrooms, water-closets, latrines, porches, balconies, verandahs, garages and the like, not less than 2.25 metres:

Provided that no part of any room shall be less than 2 metres in height.

(3) In shophouses the height of ground floor rooms shall be not less than 3 metres and the height of upper floor rooms shall be not less than 2.5 metres. Where the depth of such shophouse at any upper floor level is greater than 10.5 metres the height of rooms on every such upper floor shall be not less than 2.55 metres.

(4) In schools, the height of rooms used for the dissemination of knowledge shall be not less than 3 metres headroom.

(5) In hospitals, the height of rooms used for the accommodation of patients shall be not less than 3 metres.

(6) The height of any room in a factory in which any person works shall be not less than 3 metres headroom.

#### **Height of rooms in places of public resorts**

38.—(1) The height of rooms, other than water-closets, lavatories, cloakrooms, corridors and rooms to which the public do not have access in places of public resort shall be not less than 3.5 metres. Where a balcony is provided for in places of public resort, the heights between the level of the topmost tier of the balcony and the ceiling over such topmost tier, and between the floor immediately under the balcony and the underside of the balcony, shall be not less than 3 metres in each case.

(2) In places of public resort, the provisions of bylaw 39(1) shall apply to water-closets, lavatories, cloakrooms, corridors and rooms to which the public do not have access.

#### **Height of rooms, basement, etc. in other buildings**

39.—(1) In buildings other than those specified in bylaws 37 and 38, the height of rooms on the ground floor shall be not less than 3 metres and on any floor above the ground floor shall be not less than 2.75 metres.

(2) The height of any basement shall be not less than 2.5 metres.

(3) Where the greater part of the ground floors is left open for use as car park or covered garden or similar purpose, the height of such ground floor shall be not less than 2.5 metres.

(4) The minimum headroom of any habitable room or space inside any building shall be 2 metres.

(5) The height of any verandah-way shall be not less than 3 metres.

#### **Projections over a verandah-way**

40. Projections in the nature of—

(a) beams;

- (b) stairways and landings;
- (c) screens;
- (d) blinds; and
- (e) signboards or advertisements,

which are not less than 2.5 metres above verandah-way paving may be permitted.

### PART III

#### TEMPORARY WORKS IN CONNECTION WITH BUILDING OPERATIONS

##### **Commencement of building operation**

41.—(1) When any building operation is commenced, the person responsible for the erection shall display a board giving the names, addresses and telephone numbers of the submitting person, building contractor and building owner and lot number.

(2) Construction of any building shall not commence unless a protective hoarding to the requirements of the local authority is erected to separate the building from the public street or footway.

(3) When a protective hoarding is required, a temporary permit shall be obtained in accordance with bylaw 15 and the protective hoarding shall be constructed according to the approved protective hoarding plan and shall during the demolition or erection of any building be maintained in good condition to the satisfaction of the local authority.

##### **Catch platform**

42.—(1) During the construction of the exterior walls of a structure exceeding 12.2 metres high, catch platforms shall be erected along the exterior faces of such walls.

(2) The catch platform as stated under paragraph (1) shall be constructed and maintained not more than 6 metres below the floor from which the exterior walls are being constructed.

### **Safety net**

43. Where catch platforms are required as stated in bylaw 42(1), safety nets shall be provided to ensure that falling debris will be directed onto catch platform.

### **Responsibility of person granted temporary permits**

44.—(1) The person to whom a temporary permit is issued under bylaw 15 shall be responsible for—

- (a) taking such measures as are necessary to keep the roadside drain clear of obstruction to the satisfaction of the local authority;
- (b) adjustments of existing cables, pipes and other service or utility or equipment and for their reinstatement on completion of the works in accordance with the requirements of the relevant authorities;
- (c) painting the ends of the hoarding white and for having the ends of hoardings and railings suitably marked by red warning lights throughout the night;
- (d) any accident and damage to property or persons, directly attributable to the hoardings or railings;
- (e) ensuring that hydrant points and any other existing utility service installations are not obstructed by such hoardings of materials;
- (f) providing suitable openings with handrails at the end of the hoarding to permit easy means of access and egress over the roadside drain, to and from the adjoining verandah-ways;
- (g) the maintenance of the hoarding to the satisfaction of the local authority;
- (h) exercising due care not to damage any existing service mains by overloading the ground or by any temporary construction;
- (i) removing the hoarding together with all materials and debris on completion of the works; and
- (j) to reinstate any damage to roads, drains, footways and verandah-ways and leaving the site and drains in a clean and tidy condition.

(2) Where the person to whom a temporary permit is issued under bylaw 15 fails to comply with paragraph (1) the local authority may, without prejudice to any other remedy, undertake the work or perform any act so required under paragraph (1) and may recover from the person the expenses and costs incurred in such work. If default is made by the person in the payment, the sum so due may be withdrawn by the local authority from the sum deposited under bylaw 15.

(3) When the person to whom the temporary permit is issued has no actual physical control over the building and maintenance of the temporary works, responsibility shall rest with the building owner or land owner.

#### **Cancellation of temporary permit**

45. The local authority shall have the right to cancel the temporary permit for breach of any of the foregoing conditions or for any reason it thinks fit and the applicant shall within one week of receipt of such notice have the hoardings, railings and all other materials connected therewith removed from the public road.

#### **Vehicular access to site**

46. Vehicular access to the site may be restricted to specified hours to avoid obstructing the flow of traffic if found to be necessary.

#### **Rising mains to be installed progressively**

47. In buildings which are designed to exceed 18 metres in height to the topmost full floor, rising mains in accordance with bylaw 224 shall be installed as soon as the building exceeds that height to provide fire fighting facilities during the various stages of construction.

### **PART IV**

#### **STRUCTURAL REQUIREMENTS**

##### **Building materials**

- 48.—(1) Any materials used—
- (a) in the erection of a building;
  - (b) in the structural alteration or extension of a building;
  - (c) in the execution of works or the installation of fittings, being works or fittings to which any provision of these Bylaws applies; or



(d) for the backfilling of any excavation on a site in connection with any building or works or fittings to which any provision of these Bylaws applies,

shall be—

(i) of a suitable nature and quality in relation to the purposes for and conditions in which they are used;

(ii) adequately mixed or prepared; and

(iii) applied, used or fixed so as to adequately perform the functions for which they are designed.

(2) The use of any material or any method of mixing or preparing materials or of applying, using or fixing materials, which conforms with a Standard Specification or Code of Practice prescribing the quality of materials or standards of workmanship shall be deemed to be sufficient compliance with the requirements of paragraph (1) if the use of the material or method is appropriate for the purpose and conditions in which it is used.

#### **General requirements of loading**

49.—(1) In determining, for the purposes of these Bylaws, the loads to which any building will be subjected, the dead and imposed loads and wind loads shall be calculated in accordance with this Part:

Provided that in the case where—

(a) an actual imposed load to which a building will be subjected will exceed the imposed load calculated in accordance with this Part, such actual load shall be substituted for the load so calculated; and

(b) plant, machinery or equipment will produce exceptional dynamic effects, there shall be substituted for the imposed load calculated in accordance with this Part such greater amount which would, as a static load, produce stresses of a magnitude and kind approximating to that induced dynamically.

(2) In determining, for the purposes of this Part, the loads to which a building will be subjected—

(a) dead loads shall be calculated in accordance with BS 6399 Design loading for building, Part I Code of Practice for dead and imposed loads or as provided hereinafter in this Part;

(b) imposed loads shall be calculated in accordance with BS 6399 Design loading for building, Part 1 Code of Practice for dead and imposed loads or as provided hereinafter in this Part; and

(c) wind loads shall be calculated in accordance with BS 6399 Design loading for building, Part 2 Code of Practice for wind loads or BSCP 3 Chapter V Part 2:

Provided that—

- (i) in no case shall the factor  $S_3$  be taken as less than 1; and
- (ii) if a building falls outside the range of those for which that code gives forces and pressure coefficients, values shall be used which are appropriate in relation to that building, having regard to its construction, size, proportions, shape, profile and surface characteristics.

(3) Advice on appropriate wind velocities applicable to a particular locality to which the building is to be located shall, whenever possible be obtained from the local meteorological office.

#### **Dead and imposed loads**

50.—(1) The provisions of this Part relating to dead and imposed loads shall apply to—

- (a) new buildings and new structures;
- (b) structural alterations and additions to existing buildings and existing structures; and
- (c) existing construction on change of use,

but shall not apply to the maintenance of, or the replacement of parts of, existing buildings and structures where there is no change of use.

(2) The dead and imposed loads provided hereinafter shall be in addition to and not in substitution of provision relating to—

- (a) loads on road bridges;
- (b) loads on rail bridges;

- (c) loads due to wind;
- (d) loads due to seismic forces;
- (e) loads due to explosions;
- (f) loads on structures subject to internal pressure from their contents such as bunkers, silos and water tanks;
- (g) loads incidental to construction;
- (h) loads due to lifts and escalators;
- (i) loads due to machinery vibration (except those due to some gantry cranes);
- (j) loads due to thermal effects; and
- (k) test loads.

#### **Dead loads calculated from weights of materials used**

51.—(1) Dead loads shall be calculated from unit weight given in BS 648 or from the actual known weights of the materials used.

(2) Typical values for commonly used materials are laid out in Schedule D.

#### **Basement walls and floors**

52.—(1) In the design of basement walls and similar underground structures, provision shall be made for the lateral pressure of adjacent soil, due allowance being made for possible surcharge from fixed or moving loads.

(2) When a portion, or the whole, of the adjacent soil is below a free water surface, computations shall be based on the weight of the soil diminished by buoyancy plus full hydrostatic pressure.

(3) In the design of basement floors and similar structures underground, the upward pressure of water, if any, shall be taken as the full hydrostatic pressure applied over the entire area.

(4) The hydrostatic head shall be measured from the underside of the construction.

**Foundations**

53.—(1) The foundations of a building shall—

(a) safely sustain and transmit to the ground the combined dead load, imposed load and wind load in such a manner as not to cause any settlement beyond the limits designed for or other movement which would impair the stability of or cause damage to, the whole or any part of the building or of any adjoining building or works;

(b) be taken down to such a depth or be so constructed, as to safeguard the building against damage by swelling and shrinking of the subsoil; and

(c) be capable of adequately resisting any attack by sulphates or any other deleterious matter present in the subsoil.

(2) The requirements of paragraph (1) shall be deemed to be satisfied if the foundations of a building are constructed in accordance with the relevant recommendations of the BSCP 2004-Foundations.

**Reinforced concrete foundations**

54. The requirements of bylaw 53 shall be deemed to be satisfied as to such part of any foundations as is constructed of reinforced concrete if the work complies with BS 8110 – the Structural Use of Concrete, BSCP 114, BSCP 115 or BSCP 116, where applicable.

**Foundations below invert of drains**

55. When a building or part of a building is erected at a distance from the centre of a drain less than the depth of the drain, except where the whole of such building is carried on piles other than timber piles, the bottom of the foundation of such building or part thereof shall be stepped down within an angle of 45° so that the bottom of the foundation of that part of the building situated within the aforesaid distance shall be at least 450 millimetres below the drain invert.

### **Disappropriate collapse**

56.—(1) The building shall be so designed and constructed that in the event of an accident the structure will not be damaged to an extent disappropriate to the cause of the damage.

(2) This requirement shall apply only to—

(a) a building having five or more storeys (each basement level being counted as one storey); and

(b) a public building the structure of which incorporates a clear span exceeding 9 metres between supports.

### **Structure above foundations**

57.—(1) The structure of building above the foundations shall be designed and constructed to safely sustain and transmit to the foundations the combined dead and imposed loads and wind loads without such deflection or deformation as will impair the stability of, or cause damage to, the whole or any part of the building.

(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 standard specifications in Schedule D.

## **PART V**

### **CONSTRUCTIONAL REQUIREMENTS**

#### **Building site**

58.—(1) No building shall be erected on any site which has been filled up with any matter impregnated with faecal, animal or vegetable matter, until the whole ground surface or site of such building 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 300 millimetres thickness.

(2) The ground to be built upon by any building shall be effectively cleared of turf and other vegetable matter.

**Drainage of subsoil**

59.—(1) Wherever the dampness or position of the site of a building renders it necessary, the subsoil of the site shall be effectively drained or such other steps shall be taken as will effectively protect the building against damage from moisture.

(2) Where, during the making of an excavation for a building, existing subsoil drains are discovered, such drains shall either be diverted or replaced by pipes of approved material to ensure the continual passage of subsoil water through such drains in such a manner as to ensure that no subsoil water entering such drains causes dampness to the site of the building.

**Protection against soil erosion, etc.**

60.—(1) All air-wells and open spaces in and around buildings shall be suitably protected against soil erosion.

(2) All ground under raised buildings shall be suitably finished and graded to prevent the accumulation of water or the growth of unwanted vegetation or for the breeding of vermin.

**Prevention of dampness**

61.—(1) Suitable measures shall be taken to prevent the penetration of dampness and moisture into a building.

(2) Damp proof courses where provided shall comply with BS 743 (materials for Horizontal D.P.C.).

(3) Every brick or masonry wall of a building founded on strip footings shall be provided with a damp proof course which shall be—

(a) at a height of not less than 150 millimetres above the surface of the ground adjoining the wall; and

(b) beneath the level of the underside of the lowest timbers of the ground floor resting on the wall, or where the ground floor is a solid floor, not higher than the level of the upper surface of the concrete or other similar solid material forming the structure of the floor.

(4) Where any part of a floor of the lowest or only storey of a building is below the surface of the adjoining ground and a wall or part of a wall of the storey is in contact with the ground—

(a) the wall or part of the wall shall be constructed or provided with a vertical damp proof course so as to be impervious to moisture from its base to a height of not less than 150 millimetres above the surface of the ground; and

(b) an additional damp proof course shall be inserted in the wall or part of the wall at its base.

(5) Where the floor or any part of the walls of a building is subject to water pressure, that portion of the floor or wall below ground level shall be water proof.

#### **Nominal thickness of walls**

62. For the purpose of this Part wherever references are made to the thickness of any brick wall, the maximum or minimum thickness of such wall shall not exceed the nominal thickness plus or minus the maximum tolerance permissible under any standard specification.

#### **Party walls**

63.—(1) All party walls shall generally be of not less than 200 millimetres total thickness of solid masonry which may be made up of two separate skins each of not less than 100 millimetres thickness if constructed at different times except in the case of multi-storeyed flats and terrace houses of reinforced concrete or of protected steel framed construction having floors and roofs constructed to the requirements of these Bylaws, the party wall thereof shall not be less than 100 millimetres total thickness.

(2) Party walls in single storeyed houses may be in load-bearing 100 millimetres solid masonry provided the requirements of Parts IV, V and VI are complied with.

(3) All party walls shall be carried above the upper surface of the roof to a distance of not less than 230 millimetres at right angles to such upper surface.

(4) Other non-combustible materials may be used for party walls of less than 200 millimetres thickness provided the requirements of Parts IV, V and VI are complied with.

**Openings in party walls**

64.—(1) Openings may be made or left in a party wall if—

(a) such openings are made with the consent of and in accordance with the requirements of the local authority; and

(b) the owners of the properties concerned give written permission.

(2) Every opening in a party wall shall be solidly built up with brick or stonework to the full thickness of the party wall and properly bonded therewith when the use of such opening is discontinued.

**Recess**

65.—(1) Where a recess is made in an external wall or a party wall—

(a) the wall at the back of the recess shall be not less than 100 millimetres thick in an external wall and 200 millimetres thick in a party wall;

(b) a sufficient arch or lintel of incombustible material shall be built in every storey over the recess;

(c) in each storey the total area of recesses causing the wall at the back of the recesses to be of less thickness than that prescribed by these Bylaws shall not exceed one-half of the superficial area of the wall; and

(d) the side of the recess nearest to the inner face of a return external wall, shall be not less than 300 millimetres therefrom.

(2) No combustible parts of the roof or other construction shall be carried across the party wall and at least 100 millimetres solid construction shall separate any combustible material.

(3) Party wall to be extended up to the edge of the roof where the eaves extend beyond the external wall.

**Chases**

66. A chase made in a wall for pipes and other service facilities shall leave the wall at the back of the chase not less than 100 millimetres thick in external walls and not less than 100 millimetres thick in a party wall and shall be not wider than 300 millimetres.



### **Underpinning**

67. If underpinning is required the owner or his agent shall—

- (a) give written notice to the local authority and all adjoining owners informing of the fact and stating the method of underpinning proposed to be used;
- (b) obtain the written sanction of the local authority thereof before proceeding with the work; and
- (c) comply with the requirements as set out in these Bylaws.

### **Coping, etc. to be impervious**

68.—(1) Every coping, cornice or other like projection shall be of brick, tile, stone concrete, cement render or other impervious material.

(2) Every parapet wall, free-standing wall or boundary wall shall be finished on top with an impervious material.

### **Projections in brickwork**

69. All projections in brickwork shall be corbelled but gradually and no projection shall extend more than 230 millimetres from the face of any wall unless built in strong cement mortar.

### **Measurement of the length of a wall**

70. For the purposes of these Bylaws—

- (a) wall shall be deemed to be divided into distinct lengths by return walls when bonded to each other;
- (b) the length of a wall shall be measured from centre to centre of—
  - (i) cross walls bonded to it; or
  - (ii) piers therein having a dimension measured parallel to the length of the wall of not less than twice the thickness of the wall and a dimension measured at right angles to the walls of not less than three times the thickness of the wall.

**Use of 100 millimetres brickwork and concrete blocks in load-bearing**

71. Walls built of burnt bricks or of cement bricks 100 millimetres in thickness and wall in concrete blocks of a thickness of not less than 100 millimetres may be used for both internal and external load-bearing walls provided they are designed in accordance with bylaw 57.

**External Panel walls**

72.—(1) In all cases where 100 millimetres brickwork or 100 millimetres precast concrete blocks are used for external panel walls, such walls shall be properly secured to the reinforced concrete framework.

(2) For the purpose of this bylaw the expression “properly secured to the reinforced concrete framework” means bonding the wall panel to the reinforced concrete column with a metal tie of at least 2 millimetres thickness and 40 millimetres width, built at least 230 millimetres into the brickwork with vertical spacings of not more than 400 millimetres. All metal ties shall be securely fixed to the column.

**Non load-bearing partition**

73. Every non load-bearing partition shall be adequately restrained or buttressed.

**Timber built into party walls**

74. No timber such as joists, beams, wall plates, tile battens and ties shall be built into the thickness of any party wall unless there are not less than 100 millimetres of brickwork or cement mortar between such timbers.

**Fences and boundary walls**

75. Fences or walls to the boundaries of detached properties other than the boundary which abuts the street or backlane shall be constructed to a maximum height of 1.8 metres in the case of solid fences or walls and to a maximum height of 2.75 metres in the case of fences which are so constructed as to permit the passage of light and air.

**Cooking facilities in residential buildings**

76. Every residential building and every floor of a residential building which is or may be separately let for dwelling purposes shall be provided with an adequately lighted and ventilated kitchen and—

(a) where it is intended to install gas, electric or oil cookers for cooking purposes, the provisions of bylaw 32(1) and Schedule C shall apply; or

(b) where it is intended to use other means besides gas, electric or oil cookers for cooking purposes, a properly constructed fire place with a smoke flue and chimney shall be provided in accordance with bylaw 77.

### **Fireplaces**

77.—(1) For the purpose of bylaw 76 (b), the expression “properly constructed fire-place” means a concrete slab not less than 80 millimetres thick supported on brick or concrete piers with a smoke hood over such concrete slab constructed of incombustible materials at a height of 1.9 metres from the floor to the lower edge of such smoke hood. The smoke hood shall project 230 millimetres on each side and in front of the slab and shall be constructed with an angle of inclination of not less than 30°.

(2) The chimney and smoke flue shall be continued up above the roof and shall be of a thickness all round of not less than 100 millimetres of brick or concrete to a height of not less than 1.2 metres above the highest point in the line of junction with the roof.

(3) Flues shall be not less than 230 millimetres in diameter and a separate flue shall be provided for each fireplace.

### **Boilers, fireplaces, forges and incinerators in factories**

78. Boilers, fireplaces, furnaces, forges, incinerators and other similar heat generating appliances used in buildings other than residential buildings shall be provided with adequate means for conveying the heat and fumes generated by such appliances so as to discharge into the open by means of properly constructed flues or ducts of fire resisting materials of at least two hours rating in accordance with BS 476 Part 7 and 8.

### **Combustible materials adjoining smoke flues**

79. Combustible materials used in the construction of the building shall be at least 80 millimetres clear of any casing to any flue required for the conveyance of smoke or other products of combustion.

**Timber buildings and floors**

80.—(1) Any timber or timber material which is suitable for the purpose and condition in which it is used, may be used in the construction of residential buildings in such area and manner as may be approved by the local authority in accordance with the provisions of the ordinance and these Bylaws.

(2) Where structural timber floors are permissible under these Bylaws they shall be designed of hardwood or of species of timber treated with a suitable wood preservative.

(3) All timber floors joists shall be designed in accordance with these Bylaws.

(4) All timber trimming joists shall be at least 25 millimetres thicker than the joist of the adjoining floor.

**Bearing for joists**

81.—(1) All timber joists shall have at least 100 millimetres bearing on the walls and where supported on corbelled brickwork, such corbelling shall be continuous over-sailing courses. Separate corbels shall not be allowed.

(2) No joists shall be built into the thickness of any party wall unless there is at least 100 millimetres of fire resisting material between the sides and end of such timbers.

(3) All ends of joists built into walls shall be treated with wood preservative.

**Space below floors to be ventilated**

82. Where the ground floor of any building is constructed with timber joists and flooring boards, the space below the floor shall be adequately ventilated in accordance with Schedule C.

**Dimensions of staircases**

83.—(1) In any staircase, the rise of any staircase shall be not more than 180 millimetres and the tread shall be not less than 260 millimetres and the dimensions of the riser and the tread of the staircase so chosen shall be uniform and consistent throughout.

(2) The widths of staircases shall be in accordance with bylaw 155.

(3) The depths of landings shall be not less than the width of the staircases, except in the case of straight flight staircase, the minimum depth of intermittent half landing shall be 900 millimetres.

### **Handrails**

84.—(1) Except for staircases of less than 4 risers, all staircases shall be provided with at least one handrail.

(2) Staircases exceeding 2.3 metres in width shall be provided with intermediate handrail for each 2.3 metres of required width spaced approximately equally.

(3) In building other than residential buildings, a handrail shall be provided on each side of the staircase when the width of the staircase is 1.1 metres or more.

(4) All handrails shall project not more than 100 millimetres from the face of the finished wall surface and shall be located not less than 825 millimetres and not more than 900 millimetres measured from the nosing of the treads provided that handrails to landings shall not be less than 900 millimetres from the level of the landing.

### **Maximum flights**

85.—(1) In residential buildings, a landing of not less than 900 millimetres in depth shall be provided in staircases at vertical intervals of not more than 4.3 metres and in staircases in all other buildings there shall be not more than 16 risers between each such landing.

(2) No part in any flight of any staircase shall have less than 2 risers.

### **Winders**

86.—(1) Subject to the provisions of Parts VI and VII spiral staircases may be permitted as a secondary staircase in buildings where the topmost floor does not exceed 13 metres in height.

(2) Winding staircases may be permitted as a means of egress provided that no part of the tread is less than 15 centimetres deep and the minimum depth of tread shall be 25 centimetres measured at a point 30 centimetres from the narrowest edge.

**No obstruction in staircases**

87.—(1) There shall be no obstruction in any staircase between the topmost landing thereof and the exit discharge on the ground floor.

(2) There shall be no projection, other than handrails in staircases, in any corridor, passage or staircase at a level lower than 2 metres above the floor or above any stair.

**Lighting and ventilation of staircases**

88. All staircases shall be properly lighted and ventilated according to the requirements of the local authority.

**Enclosure of staircases in a shop**

89. In a shop, the flight of stairs which has access direct from the street shall be enclosed with walls in incombustible material.

**Use of timber staircases**

90.—(1) Timber staircases may be permitted for the following types of buildings which are not more than three storeys in height—

(a) detached residential buildings;

(b) semi-detached residential buildings;

(c) terrace houses;

(d) in the upper floors of shophouses other than from the ground floor to the first floor provided that it is located within the protected area for its full height; and

(e) other similar types of buildings of limited fire risk at the discretion of the local authority.

(2) All other staircases shall have a fire-resistance rating of not less than 2 hours.

### **Timber roofs**

91.—(1) Structural timber for roof construction shall be designed and constructed of timbers of adequate sizes which shall either be in hardwood or, if in other species of timber, shall be treated by a suitable wood preservative.

(2) All built-in or concealed roof timbers shall be coated with wood preservative.

### **Roof covering and drainage**

92. All roofs of buildings shall be so constructed as to drain effectually to suitable and sufficient channels, gutters, chutes or troughs which shall be provided in accordance with the requirements of these Bylaws for receiving and conveying all water which may fall on and from the roof.

### **Accessible flat roofs, balconies, etc.**

93. Every flat roof, balcony or other elevated areas 1.8 metres or more above the adjacent area where normal access is provided shall be protected along the edges with proper protective railings, parapets or similar devices not less than 1 metre in height or other suitable means.

### **Access to roof space**

94.—(1) Where the space beneath a roof is enclosed by a ceiling, access to such space shall be provided by means of trap door at least 0.75 metre in any direction.

(2) No verandah-way shall be constructed except to levels approved by the local authority and shall have a minimum cross-fall of 1% towards the road or drain.

### **Refuse chutes and alternate means for disposal of refuse**

95.—(1) All residential buildings which are 4 storeys and above shall be provided with refuse chutes unless alternate means for the disposal of refuse such as container-based systems, in-sink waste disposal units, Garchey system and one-site compression systems are installed.

(2) Where such alternative means of refuse disposal are installed they are subject to the approval of the local authority.

(3) Where refuse chutes are to be provided, the number shall be determined by the local authority.

(4) For non-residential buildings, no refuse chutes will be permitted. The removal of refuse and trash in such buildings shall be by way of the service lift or other means to the satisfaction of the local authority.

(5) In multi-purpose buildings containing residential accommodation, refuse chutes shall be provided for the residential portions running through the building but no openings will be permitted where such chutes pass through the non-residential portions of the building.

(6) Other alternate means for the disposal of refuse as stated in paragraph (1) to the approval of the local authority may be provided to serve the residential portions of the building.

#### **Change of use of building**

96.—(1) When the use of a building is changed from non-residential to residential, refuse chutes or other alternate means for the disposal of refuse shall be provided to the satisfaction of the local authority.

(2) Where the use of a building is changed from residential to non-residential, the openings into existing refuse chute serving the converted floors shall be sealed up.

#### **Design and construction of refuse chutes**

97. The design and construction of all refuse chutes shall conform to the following requirements—

(a) the chute shall be vertical for the whole length and shall be constructed with a smooth-finished impervious inner surface;

(b) the internal diameter shall not be less than 400 millimetres;

(c) adequate ventilation at the top of the chute shall be provided;

(d) the chute shall discharge into a suitable metal receptacle or receptacles of not more than 0.95 cubic metre in capacity or as specified by the local authority;

(e) openings into any refuse chute shall be fitted with a self-closing and tight-fitting flap or hopper; and

(f) openings into refuse chutes shall not be located in any stairway enclosure or corridor, nor in a stairway protected lobby.



### **Requirements for refuse receptacle chambers**

98. All refuse receptacles shall be housed in a chamber which shall—

- (a) be provided with concrete curbs for the refuse receptacles to stand on;
- (b) be adequately fly and vermin proofed;
- (c) be connected to and drained by a foul water drain;
- (d) open to the external air;
- (e) be lined throughout with glazed tiles; and
- (f) be located near to a water point.

### **Access to refuse receptacle chambers**

99. The approach access to the loading point from refuse chute chambers for the removal of refuse by refuse vehicles shall be at gradient to enable the refuse vehicles to approach it and shall be to the approval of the local authority:

Provided that where direct access to refuse chutes for refuse vehicles is not possible, specific points for storing refuse receptacles shall be provided to the satisfaction of the local authority.

### **Pipes and service ducts**

100.—(1) Where ducts or enclosures are provided in any building to accommodate pipes, cables or conduits the dimensions of such ducts or enclosures shall be—

- (a) adequate for the accommodation of the pipes, cables or conduits and for crossings of branches and mains together with supports and fixing; and
- (b) sufficiently large to permit access of cleaning eyes, stop cocks and other controls there to enable repairs, extensions and modifications to be made to each or all of the services accommodated.

(2) The access openings to ducts or enclosures shall be long enough and suitably placed to enable lengths of pipe to be installed and removed.

**Lifts**

101. For all non-residential buildings exceeding 4 storeys and residential buildings exceeding 5 storeys above or below the main access level at least one lift shall be provided.

**Storage of gas cylinders**

102. All gas cylinders in excess of 135 kilograms stored within residential buildings shall be contained within a fire proof compartment ventilated at lower and upper level of the compartment through to the exterior of the building.

**Swimming pools**

103.—(1) The floor and wall surfaces of swimming pools shall be smooth and free from cracks.

(2) Swimming pools shall be completely surrounded by an overflow channel constructed so that—

(a) the overflow and any matter floating therein cannot return directly to the swimming pool;

(b) the arms or legs of swimmers cannot be trapped by the overflow channel; and

(c) swimmers can take hold of the edge of the overflow channel but so that the depth of the overflow channel does not enable the bottom of the overflow channel to be touched with the fingers.

**Steps and footway**

104.—(1) Steps shall be situated at the side walls near the ends of the swimming pool and shall be so arranged that they are not higher than the internal facing of the walls of the swimming pool, such steps being constructed of non-ferrous materials with a non-slip surface and provided with a handrail.

(2) A footway with a non-slip surface shall be provided round every swimming pool.

**Opening into swimming pool**

105. The openings by which the water enters a swimming pool shall be distributed in such a manner that circulation of the water in the swimming pool is uniform and dead points of stagnant place avoided.

### **Depth of water**

106.—(1) Swimming pools shall have lines marked on the side walls of a swimming pool to indicate—

(a) the depth of the water at the shallow and deep ends of the swimming pool;

(b) the part of the swimming pool where the depth of the water is between 1.3 metres and 1.8 metres; and

(c) the depth of the water shown in figures over the lines marked on the side of the swimming pool above the overflow channel of the swimming pool.

(2) The water in swimming pools with diving boards or platforms shall have the following minimum depths as measured at any point within the swimming pool 1.50 metres from the free end of the diving boards or platforms—

(a) for diving boards up to 3 metres above the level of the water, such minimum depth shall be 3.3 metres; and

(b) for platforms up to 9.7 metres above the level of the water, such minimum depth shall be 4.5 metres.

### **Location of boards**

107. Diving boards, platforms and water chutes in the swimming pool shall be situated not less than 1.8 metres from the sides of the swimming pool or from any other diving board, platform or water chute in the swimming pool.

### **Changing rooms**

108.—(1) Swimming pools shall have separate changing rooms for each sex.

(2) The flooring of such changing rooms shall be of a non-slip impermeable material, easy to clean and graded to drainage outlets, sufficient to enable water used therein for cleaning purposes to be rapidly drained.

(3) The walls of such changing rooms shall be smooth, impermeable and easy to clean, up to a height of 1.8 metres.

### **Footbaths and showers**

109. There shall be provided around the swimming pool sufficient numbers of footbaths of not less than 0.9 metre each in any dimension with a shower situated over the entrance thereto and such footbath shall be provided with running water.

**Private residential swimming pool**

110. Bylaws 103 to 109 shall apply to all public and commercial swimming pools and not to private, residential and special purposes swimming pools, the approval of which shall be at the discretion of the local authority.

**Building requirements for disabled persons**

110A.—(1)(a) Any building or any part thereof where the public or a class of the public has access, with or without the payment of a fee; or

(b) any residential building other than a detached, semi-detached or terrace house,

shall be provided with—

(i) means of access to enable disabled persons to get into, out of, and move within the buildings;

(ii) facilities for the use of disabled persons; and

(iii) means of escape to enable disabled persons to get out of the building in case of emergency.

(2) Nothing in paragraph (1) shall require the provision of means of access for disabled persons to any part of the building for which access is provided wholly or mainly for inspection, maintenance or repair of the building, its services or fixed plant or machinery.

(3) The requirements of this bylaw shall be deemed to be satisfied if the design and construction of the access, facilities and means of escape comply with the following Malaysian Standard Code of Practice:

(a) in relation to paragraph (1)(i) and (ii), MS 1184: 1991 Access For Disabled People To Public Buildings; and

(b) in relation to paragraph (1)(iii), MS 1183: 1990 Fire Precautions In The Design And Construction Of Buildings Part 8: Code of Practice For Means of Escape For Disabled People.

(4) Buildings to which this bylaw applies and which on the date of commencement of this bylaw have been erected, or are in the course of being erected or have not been erected but plans in respect thereof have been submitted and approved shall be modified or altered to comply with this bylaw within five years from the date of commencement of this bylaw.

(5) Notwithstanding paragraph (4), the local authority may where it is satisfied that it is justifiable to do so—

(a) allow an extension of further extension of the period within which the requirements of this bylaw are to be complied with; or

(b) allow variations, deviations or exemptions as it may specify from any provision of this bylaw.

(6) Any person aggrieved by the decision of the local authority under paragraph (5) may within thirty days from the date of the decision appeal in writing to the Minister, whose decision shall be final.

(7) For the purposes of this bylaw, “disabled persons” mean persons with a physical, hearing or sight impairment which affects their mobility or their use of a building.

#### **Special place to house air-conditioning plants or units**

110B.—(1) All buildings, other than detached, semi-detached and terrace houses, erected on or after 1<sup>st</sup> January, 2002 shall have a special place to house air-conditioning plants or units or other equipment used for air-conditioning.

(2) The place referred to in paragraph (1) and the plant, unit or other equipment installed shall be hidden from public view in such manner as the local authority may approve.

#### **Drying area**

110C. All buildings, other than detached, semi-detached and terrace houses, erected on or after 1<sup>st</sup> January, 2002 shall have an area for drying which shall be constructed in such manner as the local authority may approve.

#### **Exemption from bylaw 110B or 110C**

110D.—(1) The local authority may, if it thinks it justifiable to do so, exempt any person who intends to erect a building from bylaw 110B or 110C subject to such conditions as may be imposed by it.

(2) Any person who intends to erect building who fails to comply with the conditions imposed under paragraph (1) shall be guilty of an offence: Penalty, a fine not exceeding two thousand ringgit.

**Notice to require compliance with bylaws 110B and 110C**

110E.—(1) Where plans for the erection of a building have been submitted (whether the plans have been approved or not) the local authority may, by notice, require the person who intends to erect the building to modify or alter the plan in order to comply with bylaws 110B and 110C within the period as specified in the notice.

(2) Any person who intends to erect a building who fails to comply with the requirements of the notice under paragraph (1) shall be guilty of an offence.

*[Am. Swk. L.N. 95/2001.]*

PART VI  
FIRE REQUIREMENTS

**Interpretation**

111. In this Part and Part VII—

“atrium” means a covered and enclosed space in a building formed by a series of openings in the floor connecting two or more storeys and used for purposes other than an enclosed staircase, lift hoistway or utility shaft;

“Australian Standards” means the latest published edition of the Australian Standards specifications;

“automatic” means capable of providing an emergency function without the necessity of human intervention;

“balcony approach” means a balcony being an external approach to a common staircase serving one or more occupancies;

“boundary” in relation to a building, means the boundary of the land belonging to the building (such land being deemed to include any abutting part of a street, canal or river but only up to the centre line thereof); and boundary of the premises shall be construed so as to include any such part to the same extent;

“circulation space” means any space which is solely or predominantly used as a means of access between a room and a protected shaft or between either a room or a protected shaft and exit from the building or compartment;

“compartment” means any part of a building which is separated from all other parts by one or more compartment walls or compartment floors or by both such walls and floors; and for the purposes of this Part, if any part of the top storey of a building is within a compartment, the compartment shall also include any room space above such part of the top storey;

“compartment wall” and “compartment floor” mean respectively a wall and a floor which comply with bylaw 127 and which are provided as such for the purpose of bylaw 114 to divide a building into compartments for any purpose in connection with bylaw 126 or 203;

“dead-end” means an area from which escape is possible in one direction only and in an open plan includes any point from which the direct routes to alternative exists subtend an angle of less than 45°;

“designated floor” means the floor level at which the fire brigade has access to the fire lifts and will normally be the floor level closest to the fire appliance access level;

“direct distance” means the shortest distance from any point within the floor area measured within the external enclosures of the building to the relevant exit disregarding walls, partitions or fittings other than the enclosing walls or partitions to protected staircases;

“door” includes any shutter, cover or other form of protection to an opening in any wall or floor of a building, or in the structure surrounding a protected shaft, whether the door is constructed of one or more leaves;

“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 Services Pumps via a fire services inlet and shall comply with BS 3980 and BSCP 402.101;

“element of structure” means—

- (a) any member forming part of the structural frame of a building or any other beam or column (not being a member forming part of a roof structure only);
- (b) a floor, including a compartment floor, other than the lowest floor of a building;
- (c) an external wall;

- (d) a separating wall;
- (e) a compartment wall;
- (f) structure enclosing a protected shaft;
- (g) a load-bearing wall or load-bearing part of a wall; and
- (h) a gallery;

“emergency lighting” means the illumination obtained through either an independent or secondary source of electricity supply such as trickle charged accumulators or separate generators to the normal or duplicate lighting;

“exit discharge” means that portion of means of egress between the termination of exit and public way;

“exit door” means a door from a storey, flat or room which door gives access from such storey, flat or room on to an exit route;

“exit route” means a route by which persons in any storey of a building may reach a place of safety outside the building and may include a room, doorway corridor, stairway or other means of passage not being a revolving door, lift or escalator;

“externally non-combustible” means externally faces with, or otherwise externally consisting of noncombustible material;

“final exit” means a point of discharge for the escape route from a building providing direct access to the street, passageway or open steps sited to enable the evacuation of persons from the vicinity of a building so that they are safe from fire or smoke;

“fire alarm installation” means an installation capable of warning persons of an outbreak of fire. Such installation must have detectors conforming to the L.C.P. rules and the relevant parts of BS 5839;

“fire appliance access level” means the level at which fire appliances can approach the building for purposes of fire fighting or evacuation of occupants;

“Fire Authority” means the officer in charge of the relevant Fire Services Department or any officer authorized by him in that behalf;

“fire fighting access lobby” means a lobby separated from the storey it serves by construction of a FRP of at least half hour, directly accessible from a fire fighting staircase and a fire lift and containing a dry or wet riser;



“fire fighting staircase” means a staircase designed as a recognized means of access into the building for firemen in the event of a fire;

“fire hydrant” means an installation on a permanently charged water main of appropriate size and fitted with connection suitable for use by the Fire Services Department. It may also include installation of pipes, water tanks and pumps to provide a ready means by which jet of water can be delivered for the purpose of fire fighting;

“fire lifts” means lifts capable of being commandeered for exclusive use of firemen in emergency;

“fire lift switch” means a switch located adjacent to the fire lift by the designated floor to enable the fire brigade to gain control of the fire lifts;

“fire resistance” has the meaning ascribed to it in bylaw 211;

“fire resistance period” means the period for which an element will meet the requirements in respect of transmission of heat or resistance to collapse with passage of flame when tested in accordance with the relevant parts of BS 476;

“fire resisting” means the construction so designated which has a minimum standard of fire-resistance of not less than half hour in accordance with the relevant Schedules of these Bylaws or which achieves such standard when tested in accordance with the relevant parts of BS 476 except that, in the case of the doors—

(a) the rabbets to the door frame or the door stops whichever may be are not less than 18 millimetres deep;

(b) the door is hung on metal hinges having a melting point of not less than 800°; and

(c) the door is rendered self-closing;

“fire stop” means a barrier or seal which would prevent or retard the passage of smoke or flame within a cavity or around a pipe or duct where it passes through a wall or floor or at a junction between elements of structure;

“FRP” means fire resistance period;

“height of a building” has the meaning ascribed to it in bylaw 113;

“high rising building” means a building which is beyond the reach of a 30-metre Fire Brigade ladder;

“horizontal exit” is a means of egress from a compartment or building to an adjacent compartment or building on approximately the same level and thence to a protected staircase or final exit either direct or via a protected corridor;

“hose reel installation” means an installation of pipes, watertanks, pumps and hose reels and other fittings 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 the current edition of BSCP;

“interior finish” means the exposed interior surface of buildings including, but not limited to fixed or movable walls, partitions, columns and ceilings;

“large building” means a building where the total floor area exceeds 10,000 square metres;

“LPC” means Loss Prevention Council of the United Kingdom;

“non-combustible” shall apply to materials as specified under the relevant parts of BS 476;

“permitted limit of unprotected areas” means the maximum aggregate area of unprotected areas in any side or external wall of a building or compartment, which complies with the requirements as set out in Schedule F for such building or compartment;

“protected corridor” means a corridor separated from the building it serves by partitions having FRP of not less than half hour and which partitions have all openings therein fitted with fixed lights and self-closing doors each having a FRP of not less than half hour;

“protected lobby” means a lobby enclosed throughout by partitions having a FRP of not less than half hour and has all openings therein fitted with fixed lights and self-closing doors having a FRP of not less than half hour;

“protected shaft” means a stairway, lift, escalator, chute, duct or other shaft which enables persons, things or air to pass between different compartments; and which complies with the requirements of bylaw 130;

“protected staircase” means a staircase separated from the building it serves by partitions having a FRP of not less than half hour and which has all openings in such partitions fitted with fixed lights and self-closing doors each having a FRP of not less than half hour;

“protecting structure” means any wall or floor or other structure which encloses a protected shaft other than—

- (a) a wall which also forms part of an external wall, separating wall or compartment;
- (b) a floor which is also a compartment floor or a floor laid directly on the ground; or
- (c) a roof;

“relevant boundary” in relation to a side or external wall of a building or compartment, means that part of the boundary of the premises or the notional boundary as prescribed in bylaw 125 which is adjacent to that side or wall and either coincides with, is parallel to or is at an angle of not more than 80° with that side or wall;

“separating wall” means a wall or part of a wall which is common to two adjoining buildings;

“smoke lobby” means a protected lobby being the approach to a staircase and which acts as a fire and smoke check between a storey and the staircase;

“smoke stop door” means a door or pair of doors which when fitted in a frame satisfies the requirements of section 7 of the relevant parts of the BS 476;

“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 L.P.C. Rules or other standards approved by the Fire Authority;

“staircase external” means a staircase which is completely open to the external air on at least two sides from the level of the top of the balustrade to the underside of the flight of stairs immediately above;

“staircase internal” means a staircase enclosed on all sides by partitions of walls and which has all openings in the external walls glazed or otherwise protected from the weather;

“storey exit” means a fire rated door to a protected staircase or a corridor protected with a fire resisting structure in accordance with Schedule I and in the case of ground floor accommodation storey exit means a door leading direct to a place of safety outside the building;

“travel distance” means the distance required to be travelled by a person from any point within a floor area to the relevant exit having regard to the layout of walls, partitions and fittings;

“unprotected area” in relation to an external wall or side of a building, means—

- (a) a window, door or other opening;
- (b) any part of the external wall which has fire resistance less than that specified by this Part for the wall; and
- (c) any part of the external wall which has combustible material more than 1.5 millimetres thick attached or applied to its external face, whether for cladding or any other purpose;

“wet rising system” means any charged vertical water main installed for fire-fighting purposes, of an appropriate size and fitted with connections suitable for use by the Fire Services Department and to comply with BS 5306.

#### **Designation of purpose groups**

112. For the purpose of this Part, every building or compartment shall be regarded according to its use or intended use as falling within one of the purpose groups set out in Schedule E and, where a building is divided into compartments, used or intended to be used for different purposes, the purpose group of each compartment shall be determined separately:

Provided that where the whole or part of a building or compartment, as the case may be, is used or intended to be used for more than one purpose, only the main purpose of use of that building or compartment shall be taken into account in determining into which purpose group it falls.

#### **Rules of measurement**

113. In this Part—

- (a) the height of a building, or of such a building as described in bylaw 205 means the height of such building or part, measured from the mean level of the ground adjoining the outside of the external walls of the building to the level of half the vertical height of the roof of the building or part, or to the top of the walls of the parapet (if any), whichever is the higher;

(b) the area of—

(i) any storey of a building or compartment shall be taken to be the total area in the storey bounded by the finished inner surfaces of the enclosing walls or, of any side where there is no enclosing wall, by the outermost edge of the floor on that side;

(ii) any room or garage shall be taken to be the total area of its floor bounded by the inner finished surfaces of the walls forming the room or garage;

(iii) any part of a roof shall be taken to be the actual visible area of such part measured on a plane parallel to the pitch of the roof;

(c) the cubic capacity of a building or compartment shall be ascertained by measuring the volume of space contained within—

(i) the finished inner surfaces of the enclosing walls or, on any side where there is no enclosing wall, a plane extending vertically above the outermost edge of the floor on that side;

(ii) the upper surface of its lowest floor; and

(iii) in the case of a building or of a compartment which extends to a roof, the under surface of the roof or, in the case of any other compartments, the under surface of the ceiling of the highest storey within the compartment, including the space occupied by any other walls, or any shafts, ducts or structure within the space to be so measured.

#### **Provisions of compartment walls and compartment floors**

114. Any building, other than a single storey building, of a purpose group specified in Schedule E and which has—

(a) any storey the floor area of which exceeds that specified as relevant to a building of that purpose group and height; or

(b) a cubic capacity which exceeds that specified as so relevant shall be so divided into compartments, by means of compartment walls or compartment floors or both, that—

(i) no such compartment has any storey the floor area of which exceeds the area specified as relevant to that building; and

(ii) no such compartment has a cubic capacity which exceeds that specified as so relevant to that building;

Provided that if any building is provided with an automatic sprinkler installation which complies with the recommendations of the L.P.C., this bylaw has effect in relation to that building as if the limits of dimensions specified are doubled.

**Restricted size of shop compartments for unsprinklered and fully sprinklered buildings**

115. The size of shop compartments shall not exceed—

(a) 7,000 cubic metres or 1,850 square metres floor area for unsprinklered buildings;

(b) 14,000 cubic metres or 3,700 square metres floor area for fully sprinklered buildings and shall be fully compartmental from any other parts of the shop area. Where the floor area is subdivided, there shall be no restriction on the total area:

Provided that—

(i) not less than 60% of the total area shall consist of units of separate shops not exceeding 280 square metres each of which is enclosed as in paragraph (ii); and

(ii) small shops referred to in paragraph (i) shall be enclosed on 3 sides by walls having a fire resistance equal to the compartment wall as required above. The frontage onto a covered mall or open pedestrian foot path constitutes the fourth side, and shops on a corner side will not require a third enclosing wall. The remaining areas may consist of shop larger than 280 square metres but not exceeding 2,800 square metres:

Provided that—

(aa) shop areas exceeding 2,000 square metres shall not face each other across a mall or a pedestrian foot path unless both frontage are protected by automatically operated steel shutters giving at least one hour fire resistance; and

(bb) where shops adjoin one another with their open sides in a same place are of floor areas exceeding 8,000 square metres each, they shall be protected by back-up wall behind the shop windows for a distance of at least 3 metres on both sides of the intervening wall or be separated from each other by at least one small unit not more than 280 square metres area.

**Floor in building exceeding 30 metres in height to be constructed as compartment floor**

116. In any building which exceeds 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:

Provided that an atrium building designated as special structures complying to the requirements of the Fire Authority may have floor opening on floors exceeding 9 metres height above ground floor level.

**Other walls and floors to be constructed as compartment walls or compartment floors**

117. The following walls and floors in buildings shall be constructed as compartment walls or compartment floors—

- (a) any floor in a building of Purpose Group II (Institutional);
- (b) any wall or floor separating a flat or maisonette from any other part of the same building;
- (c) any wall or floor separating part of a building from any other part of the same building which is used or intended to be used mainly for a purpose falling within a different purpose group as set out in Schedule E; and
- (d) any floor immediately over a basement storey if such basement storey has an area exceeding 100 square metres.

**Separation of fire risk areas**

118.—(1) The following areas or uses shall be separated from the other areas of the occupancy in which they are located by not less than 2 hours standard of fire resisting construction of element of structure—

- (a) boiler rooms and associated fuel storage areas;

- (b) laundries;
- (c) repair shops involving hazardous processes and materials;
- (d) storage areas of materials in quantities deemed hazardous;
- (e) liquified petroleum gas storage areas;
- (f) linen rooms;
- (g) transformer rooms and substations; and
- (h) flammable liquids stores.

(2) In building of high fire risk the separation between special risk area and the remaining of the building shall not be less than 4 hours standard of fire resistance. In exceptional cases 6 hours standard may be required.

#### **Fire appliance access**

119.—(1) All buildings in excess of 7,000 cubic metres gross shall abut upon a street or open space of clear width not less than 12 metres (6 metres for single direction flow in island site) and accessible to fire brigade appliances. The access road shall at all times be free of obstruction. Open spaces and access strips to be used for fire appliances shall be constructed and paved so as to safely support the heaviest type of appliances as specified by the Fire Authority. The proportion of the building abutting the street or open space shall be in accordance with the following scale:

| <i>Volume of building in cubic metres</i> | <i>Minimum proportions abutting perimeter of building</i> |
|-------------------------------------------|-----------------------------------------------------------|
| 7,000 to 28,000                           | one-sixth                                                 |
| 28,001 to 56,000                          | one-fourth                                                |
| 56,001 to 84,000                          | one-half                                                  |
| 84,001 to 112,000                         | three-fourths                                             |
| 112,001 and above                         | island site                                               |

(2) Building totally protected by automatic sprinkler system in accordance with L.P.C. Rules or other approved standards need not be built on island site and may abut each other, separated by a separating wall of not less than 6 hours standard of fire resistance.



(3) Entrance to sites and archways leading to the building or internal courts shall have clear passage way of a minimum width of 3 metres and a minimum height 4.26 metres for fire brigade appliances. Gates or shutters to entrance to sites and buildings shall be locked only by means of padlocks so arranged that they may be opened from both sides by firemen in an emergency.

### **Separating walls**

120.—(1) Subject to the exceptions specified in paragraph (2), no openings shall be made in any separating wall which forms a complete vertical wall separating any buildings.

(2) Nothing in this bylaw shall prohibit—

(a) the passage through a separating wall of a pipe, if the pipe—

(i) is not a flue pipe;

(ii) has a diameter not exceeding 25 millimetres if it is made of combustible material or 150 millimetres, if it is made of non-combustible material; and

(iii) is fire stopped where it passes through the wall; or

(b) an opening in a separating wall which is necessary as a means of escape from fire, if the opening is fitted with a door which has in respect of separating walls FRP of not less than that required in this Part.

(3) Any separating wall which forms a junction with a roof shall be carried above the upper surface of the roof to a distance of not less than 225 millimetres measured at right angles to such upper surface.

### **External walls**

121.—(1) If any external wall is carried across the end of a separating wall, such external wall and separating wall shall be bonded together or the junction of such walls shall be fire-stopped.

(2) Subject to the provisions relating to small garages and open car parks, any side of a building shall comply with any relevant requirements relating to the permitted limits of unprotected areas specified in Schedule F unless the building is so situated that such side might consist entirely of any unprotected area.

(3) Any external wall which constitutes, or is situated within a distance of 1 metre from any point on the relevant boundary or is a wall of a building which exceeds 15 metres in height shall—

(a) be constructed wholly of non-combustible materials apart from any external cladding which complies with bylaw 123 or any internal lining which complies with these Bylaws; and

(b) be so constructed as to attain any FRP required by this Part without assistance from any combustible material permitted by this Part:

Provided that the requirements of this Part shall not apply to—

(i) an external wall of a building which is within the limits of size indicated by the letter 'x' in Part I of Schedule I or an external wall of a building which is not divided into compartments and is within the limits of size indicated by the letter 'z' in Part 2 of Schedule I if, in either case, that building does not exceed 18 metres in height; and

(ii) an external wall of a building or part of Purpose Group III which consists of flats or maisonettes if that building has not more than three storeys or that part is separated as described in bylaw 113 and does not exceed 18 metres in height.

#### **Beam or column**

122. Any beam or column forming part of, and any structure carrying, external wall which is required to be constructed of non-combustible materials shall comply with the provisions of bylaw 121(3) as to non-combustibility.

#### **Cladding on external wall**

123.—(1) Any cladding on any external walls, if such cladding is situated less than 1.2 metres from any point on the relevant boundary, shall have a surface complying with the requirements for Class O specified in bylaw 194.

(2) Any cladding on any external wall situated 1.2 metres or more from the relevant boundary shall, if the building is more than 18 metres in height, have a surface complying with the requirements specified in Class O in bylaw 194 except that any part of such cladding below the height of 18 metres from the ground may consist of timber of not less than 10 millimetres finished thickness or of a material having a surface which, when tested in accordance with the relevant parts of the BS 476 has an index of performance not exceeding twenty.

(3) Subject to bylaw 179 any cladding except for glazed curtain walling on any existing walls shall be provided with access panels measuring not less than 1.2 metres wide by 1.6 metres high at each floor level and located at not more than 15 metres apart. All such openings shall connect directly to existing openings in the external walls giving access into the building and shall be clearly identified externally by a red triangle marking 75 millimetres wide.

#### **Reference to Schedule F**

124. For the purpose of bylaws 121, 122, 123 and 125—

(a) any part of a roof shall be deemed to be part of an external wall or side of a building if it is pitched to an angle 70° or more to the horizontal and adjoins a space within the building to which persons have access not limited to the purposes of maintenance or repair; and

(b) any reference to Schedule F shall be construed as referring to the provisions of Part I of Schedule F together with, at the option of the persons intending to erect the building, either the provisions of Part II, Part III or Part IV of Schedule F.

#### **Relevant boundary**

125. If any building is to be erected on land occupied with any other building, or two or more detached buildings are to be erected on land in common occupation and either of those buildings is within Purpose Group I or III, other than a detached building which consists only of a garage or of an open car park, in the application of the provisions of this Part to any external wall of any building to be erected which faces an external wall of such other building—

(a) the relevant boundary shall be a notional boundary passing between those buildings and such boundary must be capable of being situated in such a position as to enable the external walls of those buildings to comply with the requirements of this Part; and

(b) if such other building is an existing building it shall be deemed to be (a building to be) erected on the site which it occupies, being of the same purpose and having the same unprotected areas and fire resistance as the existing building.

**Construction of separating wall**

126.—(1) Any separating wall, other than a wall separating buildings not divided into compartments within the limits of size indicated by the letter 'x' in Part I of Schedule I, shall be constructed wholly of non-combustible materials, excluding any surface finish to a wall which complies with the requirements of these Bylaws and the required FRP for the wall shall be obtained without assistance from such non-combustible material.

(2) Any beam or column forming part of, and any structure carrying, a separating wall which is required to be constructed of non-combustible materials shall itself comply with the requirements of paragraph (1) as to non-combustibility.

**Special requirements as to compartment walls and compartment floors**

127.—(1) No opening shall be made in any compartment wall or compartment floor with the exception of any one or more of the following—

(a) an opening fitted with a door which complies with the requirements of bylaw 142 and has FRP which is not less than—

(i) in the case of a wall separating a flat or maisonette from any space in common use giving access to that flat or maisonette, half hour; or

(ii) in any other case, the FRP required by the provisions of these Bylaws in respect of the wall or floor;

(b) an opening for a protected shaft;

(c) an opening for a ventilation duct, other than a duct in, or consisting of, a protected shaft, if any space surrounding the duct is fire-stopped and the duct is fitted with an automatic fire damper in accordance with Australian Standard 1682 and 1668 Part I – 1974 or its equivalent where it passes through the wall or floor which fire damper shall have not less than the required FRP of the material of the compartment wall or floor through which it passes;

(d) an opening for a pipe which complies with the requirements of bylaw 120(2);

(e) an opening for a refuse chute having a FRP of at least one hour and having a close-fitting door situated in an external wall of the chamber having a FRP of half-hour.

(2) Where a compartment wall or compartment floor forms a junction with any structure comprising any other compartment walls, or any external wall, separating wall or structure enclosing a protected shaft, such structures shall be bonded together at the junction or the junction shall be fire-stopped.

(3) Where any compartment wall forms a junction with a roof, such wall shall be carried to the under surface of the roof covering.

(4) Where any chimney, appliance ventilation duct or duct encasing one or more flue pipes passes through a compartment floor or compartment wall—

- (a) any flue in the chimney; or
- (b) the passages in the appliance ventilation duct; or
- (c) the space within the duct encasing the flue pipe or pipes,

shall be separated from that compartment floor or that compartment wall and from each compartment adjoining that wall or floor by non-combustible construction having FRP of not less than half the minimum FRP required by these Bylaws in respect of that compartment wall or compartment floor through which such chimney, duct or pipe passes.

(5) If any chimney, appliance ventilation duct or duct encasing one or more flue pipes forms a part of a compartment wall—

- (a) any flue in the chimney; or
- (b) the passage in the appliance ventilation duct; or
- (c) the space within the duct encasing the flue pipe or pipes,

shall be separated from any compartment adjoining that wall by non-combustible construction which will, at any level, have FRP of not less than half the minimum FRP required by these Bylaws in respect of the compartment wall at that level.

(6) Any compartment wall or compartment floor which is required by these Bylaws to have FRP of one hour or more shall, excluding—

- (a) any floor finish;
- (b) any surface finish to a wall or ceiling which complies with the requirements of bylaw 194, or

- (c) any ceiling which complies with the descriptions specified in Schedule I,

be constructed wholly of non-combustible materials and, apart from any ceiling, the required FRP of the wall or floor shall be obtained without assistance from any non-combustible material.

- (7) Any beam or column forming part of, and structure carrying, any compartment wall or compartment floor which is required to be constructed of non-combustible materials, shall itself comply with the provisions of paragraph (6) as to non-combustibility.

#### **Horizontal and vertical barriers of the external walls**

128. Openings in external wall located vertically above one another shall be protected by approved flame barriers either extending 750 millimetres beyond the exterior wall in the plane of the floor or by vertical panels not less than 900 millimetres in height.

*[Sub. Swk. L.N. 39/2007.]*

#### **Provisions of excess flow value**

129. Gas meters installed in buildings shall be connected to a service pipe which incorporates a thermal cut-off device and design to cut off the flow of gas automatically in the event in the rise of the temperature exceeding 100 degree celcius and shall incorporate automatic excess flow cut-out value.

#### **Protected shafts**

130.—(1) No protected shaft shall be constructed for use for any purposes additional to those specified in this Part other than for the accommodation of any pipe or duct, or as sanitary accommodation or washrooms, or both.

(2) Subject to the provisions of this Part any protected shaft shall be completely enclosed.

(3) Any protecting structure which is required to have a FRP of one hour or more, and any beam or column forming part of that structure and any structure carrying such protecting structure shall be constructed of non-combustible materials throughout, with the exception of any external surface finish which complies with the requirements of bylaw 194 relating to wall surfaces.

(4) Any wall, floor or other structure enclosing a protected shaft but not being a protecting structure may contain such openings as shall be in accordance with other provisions of these Bylaws.

(5) There shall be no opening in any protecting structure other than any one or more of the following—

- (a) an opening for a pipe;
  - (b) an opening fitted with a fire-resisting door which complies with the provisions of bylaw 142;
  - (c) if the protected shaft contains a lift, an opening which complies with the provisions of bylaw 142;
  - (d) if the protected shaft serves as, or contains a ventilating duct, an inlet to or outlet from the duct or an opening for the duct.
- (6) Any opening for a pipe shall be effectively fire-stopped.

#### **Ventilation to lift shafts**

131. Where openings to lift shafts are not connected to protected lobbies, such lift shafts shall be provided with vents of not less than 0.09 square metres per lift located at the top of the shafts. Where the vent does not discharge directly to the open air the lift shafts shall be vented to the exterior through a duct of the required FRP as for the lift shafts.

#### **Openings in lift shafts**

132.—(1) Every opening in a lift shaft or lift entrance shall open into a protected lobby unless other suitable means of protection to the opening is provided to the satisfaction of the local authority. These requirements shall not apply to open type industrial and other special buildings as may be approved by the local authority.

(2) Landing doors shall have a FRP of not less than half the FRP of the hoistway structure with a minimum FRP of half hour.

(3) No glass shall be used in landing doors except for vision in which case any vision panel shall be glazed with wired safety glass, and shall not be more than 160 square centimetres and the total area of one or more vision panels in any landing door shall be not more than 520 square centimetres.

(4) Each clear panel opening shall reject a sphere 150 millimetres in diameter.

(5) Provision shall be made for the opening of all landing doors by means of an emergency key irrespective of the position of the lift car.

**Smoke detectors for lift lobbies**

133.—(1) Any protected lobby into which a lift opens shall be provided with smoke detector.

(2) Lift not opening into a smoke lobby shall not use door reopening devices controlled by light beam or photo-detectors unless incorporated with a force close feature which after thirty seconds of any interruption of the beam causes the door to close within a preset time.

**Emergency mode of operation in the event of mains power failure**

134.—(1) On failure of mains power for buildings in excess of 18 metres above the lowest fire appliance access level, all 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. For buildings of 18 metres and less means shall be provided to bring the lifts to the nearest floor automatically.

(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.

**Fire mode of operation**

135.—(1) The fire mode of operation shall be initiated by a signal from the fire alarm panel which may be activated automatically by one of the alarm devices in the building or manually.

(2) If mains power is available all lifts shall return in sequence directly to the designated floor, commencing with the fire lifts, without answering any car or landing calls, overriding the emergency stop button inside the car, but not any other emergency or safety devices, and park with doors open.

(3) The fire lifts shall then be available for use by the fire brigade on operation of the fire lift switch.

(4) Under this mode of operation, the fire lifts shall only operate in response to car calls but not to landing calls in a mode of operation in accordance with bylaw 134.

(5) In the event of mains power failure, all lifts shall return in sequence directly to the designated floor and operate under emergency power as described under paragraphs (2), (3) and (4).



### **Protected shafts as ventilating duct**

136.—(1) If a protected shaft serves as, or contains, a ventilating duct—

(a) the duct shall be fitted with automatic fire dampers together with or without subducts as Australian Standard 1668: Pt. 1:1974, so constructed at such intervals and in such positions as may be necessary to reduce, as far as practical, the risk of fire spreading from a compartment to any other compartment, or such other provision shall be made as will reduce such risk as far as practicable; and

(b) the duct shall not be constructed of, or lined with, any material which substantially increases such risk.

(2) In addition, in the case of protected shaft containing a ventilating duct, the shaft shall be so constructed with additional barriers to fire between the duct and the shaft as may be necessary to reduce as far as practicable the risk of fire spreading from a compartment to any other compartment.

### **Protected shafts consisting of staircase**

137. A protected staircase or a protected shaft containing a staircase shall not contain any pipe conveying gas or oil or any ventilating duct other than a duct serving only that staircase or shaft.

### **Stages in places of assembly**

138.—(1) In places of assembly, other than school halls or other similar halls where stage scenery is infrequently used, capable of seating more than 400 persons and in which stage scenery may be used, the stage shall be separated from the auditorium by a proscenium wall of not less than 225 millimetres brickwork or other material of equivalent FRP, carried down to a solid foundation and up to at least 0.92 metres above the roof level unless the roof is constructed of materials having the FRP as specified in Schedule 1.

(2) No more than three openings inclusive of the proscenium opening shall be provided in the proscenium wall.

(3) No opening additional to the proscenium opening shall be more than 0.61 metres above the level of the stage nor shall such additional opening have an area exceeding 1.858 square metres and each such additional opening shall be fitted with a door constructed of materials having the FRP as specified in Schedule I.

**Open stages**

139. Open stages without proscenium walls may be permitted provided suitable protection devices to the satisfaction of the Fire Authority are installed.

**Fire precautions in air conditioning systems**

140.—(1) All air-conditioning ducts, including farming therefor, except ducts in detached and semi-detached residential buildings shall be constructed entirely of non-combustible materials and shall be adequately supported throughout their lengths.

(2) No air-conditioning ducts shall pass through fire walls unless as provided for in bylaws 127 and 136.

(3) Outdoor and return air intakes of any air-conditioning apparatus shall be situated such that air shall not be drawn from any space in which inflammable vapour or dust is prevalent and shall be so situated as to prevent the drawing in of any combustible material.

**Fire-stopping**

141.—(1) Any fire stop required by the provisions of this Part shall be so formed and positioned as to prevent or retard the passage of flame.

(2) Any fire stop shall—

(a) if provided around a pipe or duct or in a cavity, be made of non-combustible material or, if it is in a floor or wall constructed of combustible material, or timber not less than 37 millimetres thick; and

(b) if provided around a pipe or duct, be so constructed as not to restrict essential thermal movement.

(3) Any fire stop formed as a seal at the junction of two or more elements of structure shall be made of non-combustible material.

(4) Any cavity in an element of structure which—

(a) is continuous through the whole or part of such element; and

(b) has a surface of combustible material exposed within the cavity which is of a class lower than Class O in bylaw 194 shall be fire stopped—

(i) at any junction with another element of structure or with a ceiling under a roof; and

(ii) in such a position that there is no continuous cavity without a fire stop which in one plane exceeds either 7.625 metres in a single dimension or 23.225 square metres in area,

but nothing in this bylaw shall prohibit the insertion of combustible filling in a cavity.

#### **Fire doors in compartment walls and separating walls**

142.—(1) Fire doors of the appropriate FRP shall be provided.

(2) Openings in compartment walls and separating walls shall be protected by a fire door having a FRP in accordance with the requirements for that wall specified in Schedule I.

(3) Openings in protecting structures shall be protected by the fire doors having FRP of not less than half the requirement for the surrounding wall specified in Schedule I but in no case less than half hour.

(4) Openings in partitions enclosing a protected corridor or lobby shall be protected by fire doors having FRP of half hour.

(5) Fire doors including frames shall be constructed to a specification which can be shown to meet the requirements for the relevant FRP when tested in accordance with M.S.1073.

#### **Door closers for fire doors**

143.—(1) All fire doors shall be fitted with automatic door closers of the hydraulically spring operated type in the case of swing doors and wire rope and weight type in the case of sliding doors.

(2) Double doors with rabbeted meeting stiles shall be provided with coordinating device to ensure that leafs close in the proper sequence.

(3) Fire doors may be held open provided the hold open device incorporates a heat actuated device to release the door. Heat actuated devices shall not be permitted on fire doors protecting openings to protected corridors or protected staircases.

(4) All fire resisting doors shall be made effectively self-closing by means of suitable spring device which will ensure that the door will be held firmly in a close position and the doors shall be hung on hinges in which no part of it is made either of combustible material or of non-combustible material having a melting point of less than 800° celcius.

(5) All fire doors shall be fitted with intumescent strips.

**Buildings to provide escape routes**

144. All buildings shall be provided with escape routes of such number, size, layout and construction as may be needed to enable the occupants to reach the place of safety in the event of fire and any other works necessary to ensure the safe and effective use of the escape routes at all times.

**Measurement of travel distance to exits**

145.—(1) The travel distance to an exit shall be measured on the floor or other walking surface along the centre line of the natural path of travel, starting 0.300 metre from the most remote point of occupancy, curving around any corners or obstructions with 0.300 metre clearance therefrom and ending at the storey exit. Where measurement includes stairs, it shall be taken in the plane of the tread nosing.

(2) In the case of open areas, the distance to exits shall be measured from the most remote point of occupancy, provided that the direct distance shall not exceed two-thirds the permitted travel distance.

(3) In the case of individual rooms which are subject to occupancy of not more than six persons, the travel distance shall be measured from the doors of such rooms:

Provided that the travel distance from any point in the room to the room door does not exceed 15 metres.

(4) The maximum travel distance to exits and dead end limits shall be as specified in Schedule G.

**Exits to be accessible at all times**

146.—(1) Except as permitted by bylaw 148 not less than two separate exits shall be provided from each storey together with such additional exits as may be necessary.

(2) The exits shall be so sited and the exit access shall be so arranged that the exits are within the limits of travel distance as specified in Schedule G and are readily accessible at all times.

(3) Where the floor area is sub-divided there shall at all times be available an alternative means of escape to either the staircase or the exit points and where dead-end are unavoidable, they shall not exceed the limits as specified in Schedule G.

#### **Staircases serving open balcony approaches**

147.—(1) Unenclosed staircases serving open balcony approaches may be permitted provided that the walls separating staircases from the occupancies are returned along the corridor and the exterior walls for a distance of not less than 1.5 metres.

(2) The minimum required width of the balcony approaches shall not be obstructed or reduced by doors or windows opening into such balconies.

(3) Every window opening on to the balcony approach shall be so arranged that it shall not be possible to fix any such windows in an open position, in such manner as will reduce the minimum required width of the balcony.

(4) Fire resisting doors and fire resisting glazing to windows shall be required along dead-ends of the routes.

#### **Storey exits**

148.—(1) Except as provided for in bylaw 182, every compartment shall be provided with at least two exits located as far as possible from each other and in no case closer than 4.5 metres and in such position that the angle subtended by the staircases to any point of the opposite perimeter wall shall not be less than 45°. The travel distance specified in Schedule G shall not be exceeded.

(2) The width of storey exits shall be in accordance with the provisions of Schedule G.

(3) Where the building or floor area is sub-divided, each sub-divided area shall have direct access to the required number of exits without passing through other sub-divided premises.

(4) Means of escape from any part of the building shall be so arranged that it is not necessary to pass through one staircase lobby enclosure or lobby in order to reach an alternative stair.

**Exits from flat or maisonette**

149. In flats or maisonettes where the means of egress passes through a common area shared by an opening or doorway from the kitchen, a secondary means of egress shall be provided which may be in the form of balcony connected with and accessible to the adjoining flat or maisonette which shall have a clear floor area adequate to accommodate the full occupant load of the flat or maisonette served.

**Staircase exits from buildings**

150.—(1) When the foot of an exit staircase does not connect directly to the final exit, the exit route from the foot of the staircase at the final exit shall be separated from other parts of the building by—

(a) elements of not less than 1 hour fire resistance when the exit connects 3 storeys or less;

(b) elements of not less than 2 hours fire resistance when the exit connects 4 or more storeys; and

(c) all openings in the separating elements shall be protected by approved self-closing doors or shutters of the equivalent fire resistance period.

(2) Not more than 50% of the computed occupancy load shall be discharged through these exit routes.

(3) The exit routes are kept free of obstructions and are clearly identified and visible from the foot of the staircase.

(4) The exit route is protected by an automatic sprinkler installation.

**Dead-end corridors be fire resistant**

151. Where staircases are not located at the extremities of the building, corridors leading to staircases to points where only single direction of escape is available, the dead-end corridors shall be provided with fire resistant construction of not less than 1 hour fire rating. All openings into such dead-end corridors shall be protected by half hour fire door.

**Entrance to basement staircase not to be within hall or lobby**

152. Access to basement staircase shall preferably be from the open, and where it is located inside the building adequate separate access from any other stairs or exits shall be provided with ventilated lobby and doors at both sides.

**Gas meters or regulators not to be installed within escape route, etc.**

153. The installation of gas meters or regulators shall not be permitted within the escape routes or escape staircase enclosures.

**Location of staircase tower**

154. Staircase tower shall be at centre not exceeding 40 metres from any exit with adequate means of escape in case of fire to provide a safe route from any part of a building to the street to enable any person to escape from smoke and heat by his own unaided effort.

**Staircases**

155.—(1) Except as provided for in bylaw 182, every upper floor shall have means of egress via at least two separate staircases.

(2) Staircases shall be of such width that in the event of any one staircase not being available for escape purposes the remaining staircases shall accommodate the highest occupancy load of any one floor discharging into it calculated in accordance with provisions in Schedule G.

(3) The required width of a staircase shall be clear width between walls but handrails may be permitted to encroach on this width to a maximum of 75 millimetres.

(4) The required width of a staircase shall be maintained throughout its length including at landings.

(5) Doors giving access to staircases shall be so positioned that their swing shall at no point encroach on the required width of the staircase or landing.

**Exit route**

156. No exit route may reduce in width along its path of travel from the storey exit to the final exit.

**Egress through unenclosed openings**

157. Where unenclosed openings are permitted between floors and for a mezzanine floor, egress may be by way of an open staircase to an adjacent floor and thence to a storey exit—

- (a) the layout is such that a fire originating anywhere within the compartment will be obvious to the occupants of all communicating levels or areas;
- (b) the travel distances specified in Schedule G are not exceeded;
- (c) only 50% of the occupants of a floor are assumed to use the open staircase and storey exits are provided at every level to accommodate the other 50% of the occupants of that level in accordance with the provisions of Schedule G; and
- (d) the storey exits on the principal floor through which other levels discharge are designed to handle the occupants of that floor plus 50% of the occupants from the adjacent levels discharging through it.

**Horizontal exits**

158.—(1) Where appropriate, horizontal exits may be provided in lieu of other exits.

(2) Where horizontal exits are provided, protected staircases and final exits need only be of a width to accommodate the occupancy load of the larger compartment or building discharging into it so long as the total number of exit widths provided is not reduced to less than half that would otherwise be required for the entire area of the building.

(3) For institutional occupancies the total exit capacity other than horizontal exits shall not be reduced by more than one-third that would otherwise be required for the entire area of the building.

**Emergency exit signs**

159.—(1) In all buildings other than small residential buildings the location of every exit on every floor and every exit door from an area, where people work, congregate or use as accommodation, shall be clearly indicated by a “KELUAR” sign in solid letters of not less than 100 millimetres high and not less than 12 millimetres wide, placed over the exit.



(2) Such signs shall be so placed, so as to be clearly visible at all times. In long corridor, in open floor area and in situation where the location of the exit is not readily visible “KELUAR” signs with directional arrow shall be provided to serve as guide to the exits.

(3) Such illuminated signs may be installed on the floor or wall of the passage way or corridor and where installed on the wall, it shall be at a height not more than one and half metres above floor level.

(4) The legends of the “KELUAR” sign and directional sign shall be in white on green background or in green on white background. There shall be a pictorial illustration in reverse colours to that of the “KELUAR” sign measuring 150 millimetres by 150 millimetres denoting a person moving down staircase with the word “EXITS” of lettering size not less than 25 millimetres high immediately below. The “KELUAR” sign shall be internally illuminated at all material times.

#### **Escape staircases be legibly indicated**

160.—(1) All escape staircases shall be legibly indicated in red block letters on white background with letterings of not less than 100 millimetres high and shall be indicated with sign “TIADA JALAN TERUS KE BUMBUNG” where such staircases do not provide access to roof levels.

(2) Every staircase landing within the staircase enclosure on the wall adjacent to the storey exit at the height of 2 metres from ground level shall be fixed with a sign in red block letters on white background of not less than 100 millimetres in size indicating the storey number.

#### **Exit doors**

161.—(1) All exit doors shall be openable from the inside without the use of a key or any special knowledge or effort.

(2) Exit doors shall close automatically when released and all door devices including magnetic door holders, shall release the doors upon power failure or actuation of the fire alarm.

(3) There shall be available from each room such number of exit doors and of such width as shown in Schedule K according to the capacity of the room.

(4) Every exit door so provided shall give access to an exit route or routes:

Provided that where the capacity of the room exceeds 200 persons, the exit door for such room shall give an access to 2 or more corridors or balconies with escape in more than one direction except as provided for in bylaw 174 or place of assembly.

(5) Where two or more exit doors vary in width, any width of an exit door in such group in excess of 50% above the width of the narrowest exit door in such group, shall not be included in the calculation for the minimum total width of exit doors as required in column 3 of Schedule K.

#### **Arrangement of storey exits**

162.—(1) Where two or more storey exits are required they shall be spaced at not less than 5 metres apart measured between the nearest edges of the openings.

(2) Each exit shall give direct access to—

- (a) a final exit;
- (b) a protected staircase leading to a final exit; or
- (c) an external route leading to a final exit.

(3) Basements and roof structures used solely for services need not be provided with alternative means of egress.

#### **Calculation of occupancy loads.**

163. Calculation of occupancy loads and capacity of exits shall be in accordance with the provisions of Schedule G.

#### **Computing storey exit width**

164. To compute the required exit width from individual floors of a building—

- (a) calculate the floor area net or gross whichever is applicable;
- (b) determine the allowable occupancy load factor from Table;
- (c) divide the floor area by the number of square metre per person to determine the number of persons for which exits must be provided from that floor;

(d) determine from the Table the capacity of the type of exit to be used for the purpose group being designed; and

(e) calculate the number of units of exit width for each type of exit used based upon the capacity.

#### **Computing number of staircases and staircase width**

165. The following factors shall be used in computing the exit widths—

(a) in a multi-storeyed building if x units of exit width are required from each floor the staircases serving those floors do not need to be x times the number of floors served in units of exit width. The staircases need be only wide enough to serve each floor but not less than the minimum width allowed and in every case one of the protected staircases shall be assumed to be inaccessible and the remaining protected staircases shall be of sufficient width and number to accommodate the relevant occupancy;

(b) depending on the occupancy, street floor exits have to be sized to handle not only the occupant load of the street floor but also a percentage of the load of the exits discharging to the street floor from floors above and below;

(c) exits should never decrease in width along their length of travel and, if two or more exits converge into a common exit, the common exit should never be narrower than the sum of the width of the exits converging into it;

(d) except as provided in these Bylaws, the minimum number of exits is two;

(e) at least one of the staircases should be a minimum of two units width except that 900 millimetres may be allowed where total occupancy of all floors served by staircases is less than 50 persons; and

(f) there should be no decrease in width along the path of travel of a staircase.

#### **Exits for institutional and places of assembly**

166. In buildings classified as institutional or places of assembly, exits to a street or large open space, together with staircases, corridors and passages leading to such exits shall be located, separated or protected as to avoid any undue danger to the occupants of the place of assembly from fire originating in the other occupancy or smoke therefrom.

### Classification of places of assembly

167. Each place of assembly shall be classified according to its capacity as follows—

|         |   |          |                       |
|---------|---|----------|-----------------------|
| Class A | — | Capacity | 1,000 persons or more |
| Class B | — | Capacity | 300 to 1,000 persons  |
| Class C | — | Capacity | 100 to 300 persons    |

### Space standards for calculating occupancy loads

168. The occupancy load permitted in any place of assembly shall be determined by dividing the net floor area or space assigned to the use by the square metre per occupant as follows—

- (a) assembly area of concentrated use without fixed seats such as an auditorium, places of worship, dance floor and lodge room – 0.65 square metre per person;
- (b) assembly area of less concentrated use such as a conference room, dining room, drinking establishment, exhibit room, gymnasium, or lounge – 1.353 square metre per person;
- (c) standing room or waiting space – 0.3 square metre per person;
- (d) the occupancy load of an area having fixed seats shall be determined by the number of fixed seats installed. Required aisle space serving the fixed seats shall not be used to increase the occupant load.

### Width of means of egress

169. Means of egress shall be measured in units of exits width of 552 millimetres. Fractions of a unit shall not be counted, except that 300 millimetres added to one or more full units shall be counted as one half of a unit exit width and no individual access to exit shall be less than 700 millimetres.

### **Rate of discharge**

170. The rate of travel per floor of persons shall be sixty persons per minute through doors or along level passage ways and forty-five persons per minute down stairs.

### **Exit details for places of assembly**

171. Every place of assembly, every tier or balcony and every individual room used as a place of assembly shall have exits sufficient to provide for the total capacity hereof as determined in accordance with bylaw 168 and as follows—

- (a) no individual unit of exit width shall serve more than one hundred persons;
- (b) doors leading outside the building at ground level of not more than three risers above or below ground one hundred persons per exit unit;
- (c) staircases or other types of exit not specified in bylaw 165 above seventy-five persons per exit unit;
- (d) every Class A place of assembly (capacity one thousand persons or more) shall have at least four separate exits as remote from each other as practicable;
- (e) every Class B place of assembly (capacity three hundred to one thousand persons) shall have at least two separate exits as remote from each other as practicable, and if of a capacity of over six hundred at least three such exits;
- (f) every Class C place of assembly (capacity one hundred to three hundred persons) shall have at least two means of exit, consisting of separate exits or doors leading to a corridor or other space giving access to separate exits in different directions.

### **Seating**

172.—(1)(a) The spacing of rows of seats from back to back shall be not less than 825 millimetres, nor less than 675 millimetres plus the sum of the thickness of the back and inclination of the back.

(b) There shall be a space of not less than 300 millimetres between the back of one seat and the front of the seat immediately behind it as measured between plumb-lines.

(c) Rows of seats between gangways shall have not more than fourteen seats.

(d) Rows of seats opening on to a gangway at one end only shall have not more than seven seats.

(e) Seats without dividing arms shall have their capacity determined by allowing 450 millimetres per person.

(2) (a) With continental seating, the spacing of rows of unoccupied seats shall provide a clear width between rows measured horizontally as follows (automatic or self-rising seats shall be measured in the seat-up position, other seats shall be measured in the seat-down position)—

450 millimetres clear width between rows of 18 seats or less;

500 millimetres clear width between rows of 35 seats or less;

525 millimetres clear width between rows of 45 seats or less;

550 millimetres clear width between rows of 46 seats or more.

(b) With continental seating, the number of intervening seats between any seat and a gangway may be increased to 49 where exit doors are provided along each side gangway of the row of seats at the rate of 1 pair of exit doors for each 5 rows of seat. Such exit doors shall provide a minimum clear width of 1,680 millimetres.

### **Gangway in places of assembly**

173.—(1) A clear gangway not less than 1,200 millimetres in width shall be provided around the stalls and balcony in a place of assembly leading to exit doors therein:

Provided that if the gangways in the balcony lead to exit doors not less than 1,200 millimetres in width the rear gangway may be omitted.

(2) Gangways not less than 1,200 millimetres wide running parallel to the rows of seating in a place of assembly shall be provided where required by the local authority.

(3) All floors of balconies or tiers in a place of assembly shall be constructed entirely of reinforced concrete.

(4) Steps shall not be used to overcome differences in level in a gangway in a place of assembly unless the slope of such gangway exceeds one in ten.

(5) Where steps of a pitch exceeding 30° or ramps of a slope exceeding one in ten are provided in gangways flanking the seating in a place of assembly, suitable handrails shall be provided.

(6) The tread of steps in gangways in a place of assembly shall have a non-slip surface and the edges of such steps shall be illuminated at step level.

(7) In circles and galleries or areas where the incline exceeds 15°, guard rails not less than 1,050 millimetres above floor level shall be provided at the foot of gangways in places of assembly.

#### **Exit doors in places of assembly**

174.—(1) All doors used by the public as exit doors from any part of the place of assembly or leading to the open air, shall open only in the direction of exit.

(2) In a place of assembly all exit doors and doors through which the public pass on the way to the open air shall be without locks, bolts or other fastenings while the public are in the building:

Provided that doors used for exit only may be fitted with panic bolts.

(3) Panic bolts fitted to doors in a place of assembly shall be not less than 750 millimetres or more than 1,100 millimetres above the floor.

(4) Turnstiles, if installed in a place of assembly, shall be arranged clear of the line of exit, and shall not be included in the calculation of exit width.

(5) In a place of assembly every external door used by the public and every collapsible gate shall be capable of being locked in a fully open position in such a way that a key is required to release such door or gate from such open position.

**Notice affixed to door or gate**

175. A notice or notices so arranged as to be visible from both sides of the door, gate or shutter whether the door, gate or shutter is in the open or in the closed position shall be affixed to, or in position adjacent to every door and gate referred to above, such notice bearing the words “this gate/door is required to be kept open and locked in that position during the whole time the audience/gathering is in the building”. The height of the lettering of such notice shall not be less than 75 millimetres.

**Travel distance in place of assembly**

176. Exits in any place of assembly shall be arranged that the travel distance from any point to reach an exit shall not exceed 45 metres of unsprinklered buildings and 60 metres for sprinklered buildings.

**Enclosing means of escape in certain buildings**

177.—(1) Every staircase provided under these Bylaws when such staircase is to be used as an alternative means of escape shall be enclosed throughout its length with fire resisting materials.

(2) Any necessary openings, except openings in external walls which shall not for the purposes of this bylaw include walls to air-wells, in the length of such staircase shall be provided with self-closing doors constructed of fire-resisting materials.

**External staircase**

178. Any permanently installed external staircase is acceptable as a required exit under the same condition as an internal staircase:

Provided that such staircase shall comply with all the requirements for internal staircases. External staircases shall be separated from the interior of the building by walls and fire door of the same fire resistance rating as required for internal staircases.



### **Openings in adjacent walls not permitted**

179.—(1) No openings shall be permitted to be formed in the walls adjacent to any external staircase within a distance of 2 metres measured horizontally and 9 metres measured vertically below the staircase.

(2) Ventilation openings to toilets or other protected areas are however exempted from this restriction.

(3) Where windows or other glazed openings are required within these dimensions, they shall be fitted with wired glass and be kept in permanently closed position.

### **Moving walks**

180.—(1) An inclined moving walk exit shall comply with the applicable requirements of ramps.

(2) No moving walk capable of being operated in the direction contrary to normal exit travel shall be used as a means of egress.

### **Power operated doors as mean of egress**

181. A power operated door shall only be regarded as a means of egress if it is possible to be swung in the direction of exit travel by manual means.

### **Building with single staircase**

182. A single staircase may be permitted in any building the topmost floor of which does not exceed 12 metres in height:

Provided that such building complies with the following conditions—

(a) each element of structure shall have a FRP of not less than one hour;

(b) no room or storey of the building may be used for any occupancy other than for domestic or office purposes, except that the ground storey may be used for the purposes of a shop or car park:

Provided that—

- (i) the staircase from the ground to first floor level shall be separated from the remainder of the ground floor by a wall having a FRP of not less than two hours;
- (ii) the wall enclosing the staircase at the main entrance be returned for a distance of not less than 450 millimetres along the frontage of any shop or car park;
- (iii) the maximum travel distance shall be 12 metres measured from the door of the room or area to the exit, provided the path of travel from any point in the room to the room door does not exceed 12 metres; and
- (iv) in ground and first storeys which have windows containing opening lights sufficiently near the adjacent ground level as to make emergency escape by this means reasonable a maximum travel distance up to 30 metres is permissible.

#### **Staircases to reach roof level**

183. In buildings exceeding 30 metres in height all staircases intended to be used as means of egress shall be carried to the roof level to give access thereto.

#### **Staircase carried up to underside of roof covering or separated from roof spaces**

184. The fire resisting enclosed staircase shall be carried up to the underside of the roof covering or be separated from any roof spaces by ceilings of similar construction.

#### **Smoke lobbies**

185.—(1) Access to a staircase smoke lobby shall be by means of fire doors opening in the direction of escape.

(2) The width of the smoke lobby shall at no point be less than the required exit width.

(3) Smoke lobbies shall be provided at the basement levels where an escape staircase serving an upper storey is extended to a basement.

(4) Where practical, smoke lobbies shall have permanent openings or openable windows of not less than 1 square metre giving direct access to the open air from an external wall or internal light well.

(5) Where natural ventilation is impractical smoke lobbies and fire fighting access lobbies may be ventilated by means of a vertical shaft or mechanically pressurized.

#### **Protected lobbies**

186.—(1) Protected lobbies shall be provided to serve staircases in buildings exceeding 19 metres above ground level.

(2) In buildings exceeding 45 metres above ground level, such protected lobbies shall be pressurized to meet the requirements of section 7 of the Australian Standard 1668, Part 1 – 1974 or any other system meeting the functional requirements of the Fire Authority.

(3) Protected lobbies need not be provided if the staircase enclosures are pressurized to meet the requirements of bylaw 189.

#### **Ventilation of staircase enclosures**

187.—(1) All staircase enclosures shall be ventilated at each floor or landing level by either permanent openings or openable windows to the outdoor air having a free area of not less than 1 square metre.

(2) All openable windows shall be provided with simple opening device permanently fixed to the window frame or panel that shall not require any special tools or equipment to open.

(3) In buildings not exceeding three storeys above ground level, staircase enclosures may be unventilated provided that access to them at all levels except the top floor is through ventilated lobbies.

**Ventilation of staircase enclosures in buildings not exceeding 18 metres**

188. In buildings not exceeding 18 metres above ground level, staircase enclosures may be unventilated provided that access to them at all levels except the top floor is through ventilated lobbies and the staircase enclosures are permanently ventilated at the top with at least 5% of the area of the enclosures.

**Ventilation of staircase enclosures in buildings exceeding 18 metres**

189. For staircases in buildings exceeding 18 metres above ground level that are not ventilated in accordance with bylaw 187, two alternative methods of preventing the infiltration of smoke into the staircase enclosures may be permitted by providing—

(a) permanent ventilation at the top of the staircase enclosure of not less than 5% of the area of the enclosure and in addition at suitable intervals in the height of staircase of mechanically ventilated shaft to achieve not less than 20 air changes per hour to be automatically activated by a signal from the fire alarm panel; or

(b) mechanical pressurization of the staircase enclosure to the standard of performance as specified in section 7 of the Australian Standard 1668; Part 1–1974 or any other system meeting the functional requirements of the Fire Authority.

**Staircase enclosures below ground level**

190. All staircase enclosures below ground level shall be provided with suitable means of preventing the ingress of smoke.

**Pressurized system for staircases**

191. All staircases serving buildings of more than 45 metres in height where there is no adequate ventilation as required shall be provided with a basic system of pressurization—

(a) where the air capacity of the fan shall be sufficient to maintain an air flow for not less than 60 metres per minute through the doors which are deemed to be opened;

(b) where the number of doors which are deemed to be opened at one time shall be 10% of the total number of doors opening into the staircase with a minimum number of two doors open;

(c) where with all the doors closed the air pressure differential between the staircases and the areas served by it shall not exceed 5 millimetres water gauge;

(d) where the mechanical system to prevent smoke from entering the staircase shall be automatically activated by a suitable heat detecting device, manual or automatic alarm or automatic wet pipe sprinkle system; and

(e) which meets the functional requirements as may be agreed with the Fire Authority.

#### **Atrium**

192. Atrium may be permitted in buildings 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); or
- (iv) manual controls readily accessible to the Fire Services Department;
- (h) 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 metre 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 loading the glass before the sprinklers operate.

TABLE 1

## ATRIUM SMOKE EXHAUST SYSTEM

| <i>Height of Atrium in M</i> | <i>Volume of Atrium Cubic M</i> | <i>Smoke Exhaust System (whichever is greater)</i> |                         | <i>Air supply (Lowest Level)</i>                                       |
|------------------------------|---------------------------------|----------------------------------------------------|-------------------------|------------------------------------------------------------------------|
|                              |                                 | <i>Cubic M/ Sec or</i>                             | <i>Air Change/ Hour</i> |                                                                        |
| 17 or less                   | 17, 000 or less                 | 19                                                 | 6                       | Gravity — natural flow due to difference in density.<br>75% of Exhaust |
| 17 or less                   | 17, 000 or less                 | 19                                                 | 4                       | Gravity 75% of Exhaust                                                 |
| 17 or more                   | —                               | —                                                  | 4                       | Mechanical 75% of Exhaust                                              |

### **Restriction of spread of flame**

193.—(1) A finished floor or floor covering may be exempted from the requirements of this Part:

Provided that in any case where the authority having jurisdiction finds a floor surface of unusual hazard, the floor surface shall be considered as part of the interior finish for the purposes of this Part.

(2) The classification of interior finish materials specified shall be that of the basic material used, without regard to subsequently applied paint or wallpaper, except that the Fire Authority having jurisdiction shall include such finishes in the determination of classification in any case where in the opinion of the Fire Authority having jurisdiction they are of such character or thickness or so applied as to affect materially the flame spread characteristics.

### **Classification of restriction of flame over surface wall and ceiling**

194. For the purpose of this Part and Schedule H any reference to a surface being of a specified class shall be construed as a requirement that the material of which the wall, ceiling or soffit is constructed, shall comply with the following requirements—

Class O. Surface of no flame spread.

(1) Any reference to a surface being Class O shall be construed as a requirement that—

(a) the material of which the wall or ceiling is constructed shall be non-combustible throughout; or

(b) the surface material, or if it is bonded throughout to a substrate, the surface material in conjunction with the substrate, shall when tested in accordance with BS 476; Part 6, 1968, have an index of performance (A) not exceeding 12 and a subindex (i) not exceeding 6:

Provided that the face of the plastic material having a softening point less than 120° Centigrade when tested by method 102 C of BS 2782: 1970, shall only be regarded as a surface of Class O if—

(i) the material is bonded throughout to a substrate which is not a plastic material and the material in conjunction with the substrate satisfies the test criteria prescribed in (a) above; or

(ii) the material satisfies the test criteria prescribed in (b) above and is used as a lining of a wall so constructed that any surface which would be exposed if this lining were not present, satisfies the said test criteria and is the face of a material other than a plastic material having a softening point less than 120°C.

(2) Any reference to a surface being of a class other than Class O shall be construed as a requirement that the material of which the wall or ceiling is constructed shall comply with the relevant test criteria as to surface spread of flame specified in relation to that class in clause 7 of BS 476: Part 1, Section 2, 1953.

(3) In relation to a requirement that a surface shall be of a class not lower than a specified class, Class O shall be regarded as the highest class followed in descending order by Class 1, Class 2, Class 3 and Class 4.

**Class 1. Surfaces of Very Low Flame Spread.**

Those surfaces on which not more than 150 millimetres mean spread of flame occurs.

**Class 2. Surfaces of Low Flame Spread.**

Those surfaces on which during the first 1½ minutes of test, the mean spread of flame is not more than 375 millimetres and the final spread does not exceed 450 millimetres.

**Class 3. Surfaces of Medium Flame Spread.**

Those surfaces of which, during the first 1½ minutes of test, the mean spread of flame is not more than 375 millimetres and during the first 10 minutes of test is not more than 825 millimetres.

**Class 4. Surfaces of Rapid Flame Spread.**

Those surfaces on which during the first 1½ minutes of test, the mean spread of flame is not more than 375 millimetres and during the first 10 minutes of test is more than 825 millimetres.

**Classification of interior finish materials**

195.—(1) Any material shown by test to have a life hazard owing to the amount or character of smoke or fumes generated shall be subjected to review by the Fire Authority.



(2) Classification of interior finish materials shall be in accordance with tests made under conditions simulating actual installations.

(3) Where a complete standard system of automatic sprinklers is installed, interior finish with flame spread rating not over Class 3 may be used in any location where Class 2 is normally specified, and with rating of Class 2 in any location where Class 1 is normally specified and with rating of Class 1 where Class O is specified.

(4) In all buildings other than private residences Class O or Class 1 interior finish shall be used in all basements or other underground spaces from which there is no direct exit to the outside of the building if subject to occupancy for any purpose other than storage or service facilities.

#### **Classification of surface of wall or ceiling**

196.—(1) The surface of a wall or ceiling in a room, circulation space or protected shaft shall be of a class not lower than that specified as relevant in Schedule H.

Provided that—

(a) a wall may have a surface of any class not lower than Class 3 to the extent permitted by paragraph (3); and

(b) a ceiling may either have a surface of any class not lower than Class 3 to the extent permitted by paragraph (3) or may consist of plastic material to the extent permitted by bylaw 197.

(2) Any part of the surface of a wall in a room may be of any class not lower than Class 3 if the area of the part, or, if there are two or more such parts, the total area of those parts does not exceed the lesser of the following—

(a) half the floor area of the room; or

(b) in the case of a building or compartment of Purpose Group I, II or III, 2.2 square metres or in any other case 6.5 square metres.

(3) Any part of the surface of a ceiling may be of any class not lower than Class 3 if that part of the surface is the face of a layer of material and other face of which is exposed to the external air and—

- (a)
  - (i) the ceiling is that of a room in a building or compartment of Purpose Group II, III, IV, V or VII or that of a circulation space in a building or compartment of any purpose group;
  - (ii) the area of that part does not exceed 2.5 square metres; and
  - (iii) the distance between that part and any other part is not less than 4 metres; or
- (b)
  - (i) the ceiling is that of a room in a building or compartment of Purpose Group VI or VIII;
  - (ii) the area of that part does not exceed 5 square metres;
  - (iii) the distance between that part and other such part is not less than 150 millimetres; and
  - (iv) that part and all other such parts are evenly distributed over the whole area of the ceiling and together have an area which does not exceed 15% of the floor area of the room; or
- (c) the ceiling is that of a balcony, verandah, open car park, covered way or loading way which, irrespective of its floor area, has at least one of its longer sides wholly and permanently open; or
- (d) the ceiling is that of a garage, conservatory or out-building which, irrespective of whether it forms part of a building or is a building which is attached to another building or wholly detached, has a floor area not exceeding 44 square metres.

#### Exceptions relating to ceilings

197.—(1) Any part of the ceiling of a room or circulation space may consist of—

(a) rigid polyvinyl chloride sheeting which is classified as self-extinguishing when tested in accordance with test method 508A of BS 2782: 1970 if the face of the sheeting which is not the surface of the ceiling is exposed to the external air; or

(b) one or more panels of such plastic materials as are permitted by paragraph (2) if the upper and lower surfaces of any part of the ceiling which is not formed by a panel of plastic material and the surfaces of all other parts of the structure which enclose the space over the ceiling are of a class not lower than that prescribed in Schedule H for the ceiling of such a room or circulation space.

(2) Panels to which paragraph (1)(b) refers may consist of one or more sheets or membranes of either—

(a) polyvinyl chloride which has a degree of flammability of not more than 75 millimetres when tested in accordance with method 508C of BS 2782: 1970 or which has very low flammability when tested and classified in accordance with method 508D of BS 2782: 1970, if—

(i) the nominal thickness of the sheet or membrane or, if a panel consist of two or more sheets or membranes, their nominal aggregate thickness does not exceed 0.99 millimetre; and

(ii) no panel has an area exceeding 4.0876 square metres; or

(b) any plastic material which has a softening point of not more than 120°C when tested by method 102C of BS 2782: 1970, and a burning rate of not more than 50 millimetres per minute when tested in a thickness of 3 millimetres in accordance with method 508A of BS 2782: 1970, if—

(i) the nominal thickness of the sheet or membrane or, if a panel consists of two or more sheets or membranes, their nominal aggregate thickness does not exceed 30 millimetres;

(ii) the aggregate area of the plastic material, if situated in a building or compartment of Purpose Group II, III or VII, does not exceed 30% of the floor area of the room or 15% of the floor area of the circulation space, as the case may be, or, if situated in a building or compartment of any other purpose group, does not exceed 50% of the floor area of the room or 15% of the floor area of the circulation space, as the case may be;

(iii) no panel has any side exceeding 4.75 metres in length or an area exceeding 4.4 square metres if situated in a room or 2.0438 square metres if situated in a circulation space but if two or more panels are grouped so that each is less than 575 millimetres from another, the said maximum dimensions shall be applied to the smallest rectangle which would wholly enclose all such panels; and

(iv) every panel is loosely mounted in such a way that it will fall out of its mounting when softened by heat.

#### **Reference to roofs**

198. Any reference in this Part to a roof or part of a roof of a specified designation shall be construed as meaning a roof or part of a roof so constructed as to be capable of satisfying the relevant test criteria specified in respect of that designation of roof in BS 476. Part 3:

Provided that any roof or part of a roof shall be deemed to be of such a designation if—

- (a) it confirms with one of the specifications set out against the designation in Schedule H; or
- (b) a similar part made to the same specification as that roof is proved to satisfy the relevant test criteria.

#### **Reference to buildings**

199. Any reference in this Part to a building shall, in any case where two or more houses adjoin, be construed as a reference to one of those houses.

#### **Construction of roofs**

200.—(1) No part of the roof of a building which—

- (a) has a cubic capacity exceeding 1416.43 cubic metres;
- (b) is wholly or partly of Purpose Group VI or VII; or
- (c) is a house in a continuous terrace of more than two houses,

shall be so constructed as to be designated in accordance with bylaw 202 BD, CA, CB, CC, CD, DA, DB, DC or DD, or be covered with attap or wood shingles.

(2) Any part of a roof which is so designated BA, BB, or BC, shall not be less than 2.29 metres from any point on a boundary.

(3) Any part of a roof which is so designated AD, BD, CA, CB, CC or CD or is covered with attap or wood shingles, shall be not less than 4.58 metres from any point on a boundary unless such part is—

(a) of an area not exceeding 3 square metres; and

(b) separated from any other part of the same roof which is so designated or covered with attap or wood shingles by an area of roof which is at least 1.53 metres wide and which is covered by non-combustible material,

in which case such designated part or parts covered with attap or wood shingles shall be not less than 2.29 metres from any such points.

#### **Roofing materials**

201.—(1) If any part of a roof cannot be designated under bylaw 198 on account of the low softening temperature of its covering material, such part shall be not less than 12.2 metres or twice the height of the building, whichever is the greater, from any point on a boundary unless such part is—

(a) of an area not exceeding 3 square metres; and

(b) separated from any other part of the same roof which is covered with the same material or any other material by a distance which is at least 1.53 metres wide and covered with non-combustible material,

in which case such part shall be not less than 6 metres from any such point.

(2) Nothing in this Part shall prevent any part of a roof being constructed of such glass or rigid polyvinyl chloride sheeting as cannot be designated in accordance with bylaw 198 but which, in the case of sheeting, is classified as self-extinguishing when tested in accordance with method 508A of BS 2782: 1970, whether either—

(a) that part of the roof is not less than 6 metres from any boundary;

or

(b) that part of the roof is less than 6 metres from any boundary, and the roof is that of a garage, conservatory or out building having a floor area not exceeding 40 square metres whether or not attached to or forming part of another building, or is the roof of, or canopy over, a balcony, verandah, open car park, covered way or detached swimming pool.

**Category designation for fire penetration and spread of flame on roof surface**

202. Every category designation for roofing material shall consist of two letters, the first letter referring to fire penetration and the second letter to spread of flame on the roof surface, these being determined as follows—

(a) First letter—

- (i) A – Those specimens which have not been penetrated within one hour;
- (ii) B – Those specimens which are penetrated in not less than half hour;
- (iii) C – Those specimens which are penetrated in less than half hour; and
- (iv) D – Those specimens which are penetrated in the preliminary test.

(b) Second letter—

- (i) A – Those specimens on which there is no spread of flame;
- (ii) B – Those specimens on which there is not more than 525 millimetres spread of flame;
- (iii) C – Those specimens on which there is more than 525 millimetres spread of flame; and
- (iv) D – Those specimens which continue to burn for 5 minutes after the withdrawal of the test flame or spread more than 375 millimetres across the region of burning in the preliminary test.

### **Fire resistance**

203. Subject as otherwise provided by this Part, every element of structure shall be so constructed as to have fire resistance for not less than whichever of the periods specified in Schedule I is relevant, having regard to the purpose group of the building of which it forms part and the dimensions specified in that Schedule.

### **Additional requirements**

204.—(1) In addition to any relevant requirements under bylaw 203—

(a) any external wall shall have fire resistance of not less than half-hour; and

(b) any separating wall shall have fire resistance of not less than one hour.

(2) Nothing in bylaw 203 or paragraph (1) shall apply to any part of an external wall which is non-load bearing and such external wall may, in accordance with bylaw 121, be an unprotected area.

### **Height of buildings**

205.—(1) Subject to the provisions of paragraph (2) and any other express provision to the contrary, any reference to a building of which an element of structure forms part of such building means the building or if a building is divided into compartments any compartment of the building of which the element forms part of such building.

(2) Any reference to height means the height of a building, not of any compartment in the building, but if any part of the building is completely separated throughout its height both above and below ground from all other parts by a compartment wall or compartment walls in the same continuous vertical plane, any reference to height in relation to the part means the height solely of that part.

### **Single storey buildings**

206.—(1) In the case of a single storey building nothing in bylaw 203 or 204 shall apply to any element of structure in a ground storey which consists of—

(a) a structural frame or a beam or column, provided that any beam or column, whether or not it forms part of a structural frame, which is within or forms part of a wall, and any column which gives support to a wall or gallery, shall have fire resistance of not less than the minimum period, if any, required by these Bylaws for the wall or that gallery.

(b) an internal load-bearing part of a wall, unless that wall or part is, or forms part of, a compartment wall or a separating wall, or forms part of the structure enclosing a protected shaft or support a gallery; or

(c) part of an external wall which does not support a gallery and which may, in accordance with bylaw 121, be an unprotected area.

(2) If any element of structure forms part of more than one building or compartment and the requirements for fire resistance specified in Schedule I in respect of one building or compartment differ from those specified in respect to any other building or compartment of which the element forms part, such element shall be so constructed as to comply with the greater or greatest of the requirements specified.

#### **Fire resistance of structural member**

207. Any structural member or overloading wall shall have fire resistance of not less than the minimum period required by these Bylaws for any element which it carries.

#### **Compartment wall separating flat and maisonette**

208. Any compartment wall separating a flat or maisonette from any other part of the same building shall not be required to have fire resistance exceeding one hour unless—

(a) the wall is a load-bearing wall or a wall forming part of a protected shaft; or

(b) the part of the building from which the wall separates the flat or maisonette is of a different Purpose Group and the minimum period of fire resistance required by this Part for any element of structure in that part is one and a half hours or more.

#### **Application of these Bylaws to floors**

209. In the application of these Bylaws to floors, no account shall be taken of any fire resistance attributable to any suspended ceiling other than a suspended ceiling constructed as described in Schedule I.



### **Floor area and capacity of buildings and compartments**

210. Where reference is made in this Part to floor areas and capacity of building or compartments, the maximum floor area or cubic capacity of the building or compartment may be doubled where the building or compartment is fitted throughout with an automatic sprinkler system, or with such other means of fire protection of not less efficiency in relation to the nature of the building or compartment and its contents, which the fire extinguishing system is required to protect.

### **Test of fire resistance**

211.—(1) For the purposes of this Part requirements as to fire resistance shall be construed as meaning that an element of structure shall be capable of resisting the action of fire for the specified period under the conditions of test appropriate to such element in accordance with BS 476: Part I: subject to such modifications or applications of such conditions of test as are prescribed to these Bylaws.

(2) Any compartment floor shall, if the underside of such floor is exposed to test by fire, have fire resistance for not less than the minimum period required by this Part for elements of structure forming part of the compartment immediately below such floor.

### **Fire resistance for walls**

212.—(1) Any structure other than an external wall, enclosing a protected shaft shall, if each side of the wall is separately exposed to test by fire, have fire resistance for not less than the minimum period required by this Part.

(2) Any compartment wall or separating wall shall, if each side of the wall is separately exposed to test by fire, have fire resistance for not less than the minimum period required by this Part.

(3) Any part of an external wall which constitutes, or is situated less than 0.92 metre from any point on the relevant boundary shall, if each side of the wall is separately exposed to test by fire, have fire resistance for not less than the minimum period required by this Part.

(4) Any part of an external wall which is situated 0.92 metre or more from the relevant boundary and which is required by these Bylaws to have fire resistance, shall, if the inside of the wall is exposed to test by fire, have fire resistance for not less than the minimum period required by this Part:

Provided that, for the purposes of these Bylaws, the wall shall be capable of satisfying the requirements of clause 11c of section 3 of BS 476: Part I: relating to insulation, for a period of not less than fifteen minutes.

#### **Fire resistance for floors above ground floor**

213. Any floor above the ground storey of a house falling within Purpose Group I shall, if the underside of such floor is exposed to test by fire in accordance with BS 476: Part I: be capable of satisfying the requirements of that test as to freedom from collapse for a period of not less than half an hour and as to insulation and resistance to passage of flame for not less than fifteen minutes.

#### **Fire resistance for any element of structure**

214. Any element of structure shall be deemed to have the requisite fire resistance if—

(a) it is constructed in accordance with the specifications given in Schedule I and the national period of fire resistance given in that Schedule as being appropriate to that type of construction and other relevant factors is not less than the requisite fire resistance; or

(b) a similar part made to the same specification as the element is proved to have the requisite fire resistance under the conditions of test prescribed in the foregoing Bylaws.

### **PART VII**

#### **FIRE ALARMS, FIRE DETECTION, FIRE EXTINGUISHMENT AND FIRE FIGHTING ACCESS**

#### **Detecting and extinguishing fire**

215.—(1) Every building shall be provided with means of detecting and extinguishing fire and with fire alarms together with illuminated exit signs in accordance with the requirements as specified in Schedule J.

(2) Every building shall be served by at least one fire hydrant located not more than 90 metres from the nearest point of fire brigade access.

(3) Depending on the size and location of the building and the provision of access for fire appliances, additional fire hydrant shall be provided so that no part of a building is more than 100 metres from a fire hydrant and shall where internal ringmain is required be capable of providing the minimum flow rate to be maintained for a minimum period as specified by the Fire Authority.

(4) Building with basement storeys or large buildings or high-rise buildings shall require suitable plans as such that underground storeys and other storeys will be prominently displayed in an approved position in the ground storey or other storeys. Such plans shall indicate thereon the location of essential controls so as to assist in the direction of fire fighting in the event of fire in the basement storey or other storeys. These shall be in addition to other requirements for display of floor plans for safe evacuation of the occupants in the event of fire.

#### **Automatic system for hazardous occupancy**

216. Where hazardous processes, storage or occupancy are of such characters to require the installation of automatic sprinklers or other automatic extinguishing system, it shall be of a type and standard appropriate to extinguish fires in the hazardous materials stored or handled or for the safety of occupants.

#### **Portable extinguishers**

217. Portable extinguishers shall be provided in accordance with the relevant codes of practice and shall be sited in prominent positions on exit routes to be visible from all directions and similar extinguishers in a building shall be of the same method of operation.

#### **Sprinkler valves**

218.—(1) Sprinkler valves shall be located in a safe and enclosed position on the exterior wall and shall be readily accessible to the Fire Services Department.

(2) All sprinkle systems shall be electrically connected to the nearest fire station to provide immediate and automatic relay of the alarm when activated.

(3) Plans for installation or extensions of a sprinkler system shall—

(a) be submitted by a registered Engineer.

(b) be signed by the registered Engineer and the owner of the building in which the sprinkler system is installed or to be installed and bear the certification of the registered Engineer that—

(i) such plans have been prepared in accordance with the Codes of Practice on automatic sprinkler systems specified under these Bylaws; and

(ii) he shall be responsible for the proper installation of the sprinkler system in accordance with such plans and shall carry out such test and submit such test reports as and when required by the Fire Authority.

(4) Plans for sprinkler system shall consist of layout plans of every storey of the building in which such system is installed, drawn to the same scale as the building plans and shall contain the data and information as laid-out by the approved Codes of Practice for the sprinkler system and by the Fire Authority. The installation, maintenance and testing of sprinkler system shall be in accordance with the approved Codes of Practice and the requirements of the Fire Authority.

#### **Fire installation to be tested by Fire Authority**

219. All fire installations shall be tested by the Fire Authority and thereafter any fire officer authorized in writing by the Fire Authority shall inspect periodically and test where necessary the fire extinguishing appliances and fire protection equipments required to be provided in all premises under these Bylaws. The occupants and owners shall be responsible for the regular maintenance and testing of fire protection equipment and shall ensure that they are free of defects and operable as required at all times.

#### **Means of access and fire fighting in buildings over 19 metres high**

220.—(1) Buildings in which the topmost floor is more than 19 metres above fire appliances access level, shall be provided with fire fighting access lobbies, fire fighting staircases, fire lifts and dry wet rising system at the rate of not less than 1 each for every 1,000 square metres floor area or part thereof and shall be so located to be not more than 40 metres apart:

Provided that for buildings in excess of 19 metres in height other than a residential building with balcony approach the maximum travel distance shall not exceed 40 metres.

(2) 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.

(3) All fire lifts shall be provided to give access to each fire fighting access lobby.

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

#### **Balcony access corridors as fire fighting lobby in residential buildings**

221. In residential buildings provided with balcony access corridors, these corridors may be accepted as alternative to fire fighting lobby, provided these balconies have direct access to a staircase and are suitably protected with railing parapets at least 1.07 metres high and not less than 1.3 metres wide.

#### **Installation and testing of rising system**

222.—(1) Dry rising systems shall be provided in every building in which the topmost floor is more than 19 metres but less than 30 metres above fire appliance access level.

(2) A hose connection shall be provided in each fire fighting access lobby.

(3) Dry risers shall be of minimum “Class C” pipes to BS 1387 or equivalent, with fittings and connections of sufficient strength to withstand 21 bars water pressure.

(4) Dry risers shall be tested hydrostatically to withstand not less than 14 bars of pressure for two hours in the presence of the Fire Authority before acceptance.

(5) All horizontal runs of the rising mains shall be pitched upward in the direction of flow and not less than 1 in 500 gradient.

(6) The dry riser shall be not less than 100 millimetres in diameter in buildings in which the highest outlet is 23 metres or less above the fire brigade pumping inlet and not less than 150 millimetres diameter where the highest outlet is higher than 23 metres above the pumping inlet.

(7) 100 millimetres diameter dry risers shall be equipped with a two-way pumping inlet and 150 millimetres dry risers shall be equipped with a four-way pumping inlet.

#### **Installation and testing of rising system**

223.—(1) Wet rising systems shall be provided in every building in which the topmost floor is more than 30 metres above fire appliance access level.

(2) A hose connection shall be provided in each fire fighting access lobby.

(3) Wet risers shall be of minimum 150 millimetres diameter and shall be hydrostatically tested at a pressure 50% above the working pressure required and not less than 14 bars for at least twenty-four hours.

(4) Each wet riser outlet shall comprise standard 63.5 millimetres instantaneous coupling fitted with a hose of not less than 38.1 millimetres diameter equipped with an approved types cradle and a variable fog nozzle.

(5) A wet riser shall be provided in every fire fighting access lobby or staircase which extends from the ground floor level to the roof and shall be equipped with a three-way 63.5 millimetres outlet above the roof line.

(6) Each stage of the wet riser shall not exceed 60 metres, unless expressly permitted by the Fire Authority but in no case exceeding 70 metres.

#### **Wet or dry rising system for buildings under construction**

224.—(1) Where either wet or dry riser system is required, at least one riser shall be installed when the building under construction has reached a height of above the level of the fire brigade pumping inlet with connections thereto located adjacent to a usable staircase.

(2) Such riser shall be extended as construction progresses to within two floors of the topmost floor under construction and where the designed height of the building requires the installation of a wet riser system fire pumps, water storage tanks and water main connections shall be provided to serve the riser.

#### **Foam inlets**

225. Boiler rooms and storage areas below ground level where automatic extinguishing installations are not provided shall be equipped with foam inlets.

### **Underground structures and windowless buildings to have foam inlets**

226. All underground structures, windowless buildings depending on the type of occupancy, storage, processes or type of protection installed shall be provided with foam inlets as may be required by the Fire Authority.

### **Fixed installations**

227. Fixed installations shall either be total flooding system or unit protection system depending upon the nature of hazard process and occupancy as may be required by the Fire Authority.

### **Special hazards**

228. Places constituting special hazards or risk due to the nature of storage, trade, occupancy or size shall be required to be protected by fixed installations, protective devices, systems and special extinguishers as may be required by the Fire Authority.

### **Fire alarms**

229.—(1) Fire alarms shall be provided in accordance with Schedule J.

(2) All premises and buildings with gross floor area excluding car park and storage areas exceeding 10,000 square metres or exceeding 30 metres in height shall be provided with a two-stage alarm system with evacuation (continual signal) to be given immediately in the affected section of the premises while an alert (intermittent signal) be given in adjoining section.

(3) Provision shall be made for the general evacuation of the premises by action of a master control.

(4) All fire alarm systems shall be connected to the nearest fire station where possible to provide immediate and automatic relay of the alarm when activated.

### **Command and control centre**

230. Every large premises or building exceeding 30 metres in height shall be provided with a command and control centre located on the designated floor and shall contain a panel to monitor the public address, fire brigade communication, sprinkler, waterflow detectors, fire detection and alarm systems and with a direct telephone connection to the appropriate fire station by-passing the switchboard.

**Voice communication system**

231. There shall be provided in all high rise buildings, large buildings, shopping complexes, departmental stores and flatted factories and other buildings as specified in these Bylaws to the nature, size or type of occupancy, two separate approved continuously electrically supervised voice communication systems, one fire brigade communication system and a public address system between the central control station and the following areas—

- (a) lifts, lift lobbies, corridors and staircases;
- (b) in every office area exceeding 100 square metres in area; and
- (c) in each dwelling unit and hotel quest room where the fire brigade system may be combined with the public address system.

**Electrical isolation switch**

232.—(1) Every floor or zone of any floor with a net area exceeding 1,000 square metres shall be provided with an electrical isolation switch located within a staircase enclosure to permit the disconnection of electrical power supply by the emergency lighting to the relevant floor or zone served.

(2) The switch shall be of a type similar to the fireman's switch specified in the Institution of Electrical Engineers Regulations of Malaysia then in force.

**Emergency power supply to lifts, etc. by separate sub-circuits**

233. A separate sub-circuit shall be provided as an emergency electrical power supply to lifts, lightings, fire pumps, emergency control room and alarm system and shall be individually protected.

**Special requirements for fire alarm systems**

234. In places where there are deaf persons and in places where by nature of the occupancy audible alarm system is undesirable, visible indicator alarm signals shall be incorporated in addition to the normal alarm system.



### **Fire fighting access lobbies**

235. Fire fighting access lobbies shall conform to the following requirements—

- (a) each lobby shall have a floor area of not less than 6 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 500 square centimetres shall be provided except that mechanical pressurization may be provided as an alternative.

### **Fire lifts**

236.—(1) In a building where the top occupied floor is over 18 metres above the fire appliance access level, fire lifts shall be provided.

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

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

(4) 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 60 metres travel distance from the furthestmost point of the floor.

(5) 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 areas served.

**Standard required**

237. All fire fighting installations and appliances shall conform to the current edition of the following standards—

|     |                                     |   |                                                                          |
|-----|-------------------------------------|---|--------------------------------------------------------------------------|
| (a) | Fire Hydrants                       | — | BS 750                                                                   |
| (b) | Hydraulic Hose Reels                | — | BS 5306: Part 1                                                          |
| (c) | Portable Fire Extinguishers         | — | BS 5306: Part 3                                                          |
| (d) | Dry/Wet Rising Mains                | — | BS 5041: Part 5                                                          |
| (e) | Foam Inlets                         | — | BS 5041: Part 5                                                          |
| (f) | Automatic Sprinklers                | — | LPC Rules: 1973                                                          |
| (g) | Fire Alarm Systems                  | — | BS 5839: Part 1<br>BS 5445: Part 5<br>BS 3116: Part 4<br>BS 5446: Part 1 |
| (h) | Fire Dampers                        | — | AS 1682<br>MS 555                                                        |
| (i) | Fire Lifts                          | — | AS 1682: Part 1<br>BS 5655                                               |
| (j) | Smoke Control                       | — | AS 1668: Part I                                                          |
| (k) | Halogenated Extinguishing System    | — | Halon 1301<br>NFPA 12A<br><br>Halon 1211<br>NFPA 12B                     |
| (l) | Carbon dioxide Extinguishing System | — | NFPA 12                                                                  |

**Approval of Fire Authority**

238.—(1) All fire fighting installations and appliances other than those conforming to the standards listed in bylaw 237 shall be of those as tested and approved by the Fire Authority.

(2) Plans, drawings and calculations of all fixed installations shall be submitted to the Fire Authority in a manner prescribed by the local authority before commencement of work.

(3) Every plan, drawing or calculation in respect of any automatic sprinklers or other fixed installations shall be submitted together with the relevant forms as prescribed in Schedule J.

#### **Certification on completion**

239. When the fixed installation has been completed and final tests carried out the person submitting the plans shall certify to the Fire Authority on Form B as set out in Schedule J that the work has been completed and the necessary tests carried out in accordance with the current rules of the Fire Authority for various fixed installations.

#### **Water storage**

240.—(1) Water storage capacity and water flow rate for fire fighting systems and installations shall be provided in accordance with the scale as set out in Schedule J.

(2) Main water storage tanks within the building, other than for hose reel systems, shall be located at ground, first or second basement levels, with fire brigade pumping inlet connections accessible to fire appliances.

(3) Storage tanks for automatic sprinkler installations where full capacity is provided without the need for replenishment shall be exempted from the restriction in their location.

#### **Markings on wet riser, etc.**

241.—(1) Wet riser, dry riser, sprinkler and other fire installation pipes and fittings shall be painted red.

(2) All cabinets and areas recessed in walls for location of fire installations and extinguishers shall be clearly identified to the satisfaction of the Fire Authority or otherwise clearly identified.

**Smoke and heat venting**

242. In windowless buildings, underground structures and large area factories, smoke venting facilities shall be provided for the safe use of exit.

**Natural draught smoke vent**

243.—(1) Natural draught smoke venting shall utilize roof vents or vents in walls at or near the ceiling level.

(2) Such vents shall normally be in open positions or if they are closed they shall be so designed to open automatically by an approved means in the event of a fire.

(3) Subject to bylaw 179 in hermetically sealed buildings, openings for the release of smoke and heat shall be provided in the external walls in every storey above ground level and all windows or panels located not lower than 1 metre from the floor level which shall be openable from the inside of the building without need for special keys or tools. These openings shall be spaced at not more than 15 metres apart and shall have an aggregate unobstructed free area of not less than 2½% of the total floor area of the storey served. All such openings shall be clearly identified both internally and externally by suitable red triangle markings 75 millimetres wide.

(4) All openable windows shall be identified in the floor plans displayed. Where the windows are glazed they shall be of the type that shall shatter upon impact at the sharp end of fireman's axe.

**Smoke vents to be adequate to prevent dangerous accumulation of smoke**

244. Where smoke venting facilities are installed for purposes of exit safety in accordance with the requirements of this Part they shall be adequate to prevent dangerous accumulation of smoke during the period of time necessary to evacuate the area served using available exit facilities with a margin of safety to allow for unforeseen contingencies.

**Smoke vents to be openable by Fire Services Department**

245. The discharge apertures of all manual smoke vents shall be so arranged as to be readily openable by the Fire Services Department working from the exterior.

**Lighting facilities to be provided in exit passage way, staircases, etc.**

246.—(1) Exit passage way, stairways, exits at all buildings, emergency centres, pump rooms, lift cars and other area shall be provided with artificial lighting facilities and it shall be so arranged that the failure of any one light shall not leave any area in darkness.

(2) Where a total of 4 lights are required, the emergency lightings shall be connected to the emergency power sources which shall automatically function upon the failure of the normal supply and shall maintain the level of illumination required for at least 2 hours.

**Emergency power system**

247.—(1) Emergency power system shall be provided to supply illumination and power automatically in the event of failure of the normal supply or in the event of accident to elements of the system supplying power and illumination essential for safety to life and property.

(2) Emergency power systems shall provide power for smoke control systems, illumination, fire alarm systems, fire pumps, public address systems, fire lifts and other emergency systems.

(3) Emergency systems shall have adequate capacity and rating for the emergency operation of all equipments connected to the system including the simultaneous operation of all fire lifts and one other lift.

(4) All wiring for emergency systems shall be in metal conduit or of other approved fire resisting/retarding cables or of fire resisting mineral insulated cables, laid along areas of least fire risk.

(5) Current supply shall be such that in the event of failure of the normal supply to or within the building or group of buildings concerned, the emergency lighting or emergency power, or both emergency lighting and power will be available within 10 seconds of the interruption of the normal supply. The supply system for emergency purposes shall comprise one or more of the following approved types—

(a) Storage Battery:

Storage battery of suitable rating and capacity to supply and maintain at not less than 87½% of the system voltage the total load of the circuits supplying emergency lighting and emergency power for a period of at least 1½ hours;

(b) Generator Set:

A generator set driven by some form of prime mover and of sufficient capacity and proper rating to supply circuit carrying emergency lighting or lighting and power with suitable means for automatically starting the prime mover on failure of the normal service.

## PART VIII

### MISCELLANEOUS

#### **Malaysian Standard Specification and Code of Practice to prevail over Foreign National Standard and Code of Practice**

248.—(1) In these Bylaws where there is any reference to a Foreign National Standard or Code of Practice and there is, whether on the date of the coming into operation of the Ordinance or subsequently on such dates as are specified in section 66 of the Ordinance, a corresponding Malaysian Standard or Code of Practice in respect of that subject, the Malaysian Standard or Code of Practice shall be deemed to have superseded the aforesaid foreign Standard or Code of Practice respectively and shall be deemed to apply.

(2) The use of corresponding Standards and Codes of Practice of other countries may be permitted instead of the Standards and Codes of Practice specified in these Bylaws, provided they are used completely by themselves in conformity with the required practices and together with other relevant Standards and Codes of Practice from the same source, whenever found necessary.

(3) In the event of building documents prepared according to the Standards and Codes of Practice other than those mentioned in paragraph (1) being submitted, such documents submitted shall be verified and certified by another qualified person.

### **Failures to buildings**

249.—(1) In the event of any failure to any building or part of a building, whether in the course of construction or after completion, the qualified person who—

- (a) submitted the plans, drawings or calculations for such building;
- (b) supervised the setting out of such building;
- (c) certified that the setting out was carried out in accordance with the approved site plan;
- (d) supervised the construction of such building; and
- (e) certified that proper supervision of such building was carried out,

shall within one week of the occurrence of such failure or such further period as may be specified by the local authority within whose jurisdiction such building is situated—

- (i) report such failure;
- (ii) explain the cause of failure; and
- (iii) if such failure occurred during the construction of such building, state the remedial action taken.

(2) Such qualified person shall submit such further information in such manner and within such period as may be specified by the local authority.

(3) Where the local authority has reason to believe that a failure to any building or part of a building has occurred which failure has not been reported to such local authority it shall serve a notice on the qualified person who—

- (a) submitted the plans, drawings or calculations for such building;
- (b) supervised the setting out of such building; and
- (c) certified that the setting out was carried out in accordance with the approved site plan;
- (d) supervised the construction of such building; and

(e) certified that proper supervision of such building was carried out, requiring him within one week of such service to—

(i) state whether such failure occurred;

(ii) explain why he failed to report such failure; and

(iii) if such failure occurred during the construction of such building, state the remedial action taken.

(4) Any qualified person who fails to comply with paragraph (1), (2) or (3) shall be guilty of an offence.

(5) Notwithstanding that any plan, drawing or calculation has been approved by the local authority the responsibility for the failure of any building or part of a building shall *prima facie* lie with the person who submitted such plan, drawing or calculation.

(6) The qualified person as mentioned under bylaw 5(1)(a) shall be subject to the same provision as specified under this bylaw.



## *SCHEDULE A*

### **FEES FOR CONSIDERATION OF PLANS, PERMITS, *ETC.***

(Bylaws 1(1)(a), 15(1), 16(1), 17(2), 22(1) and 25)

Half the fees set out below shall be in respect of plans for buildings used exclusively for places of religious worship, schools or for charitable purpose—

#### **New buildings**

1.—(1) Fees for the consideration of plans submitted for approval in respect of new buildings other than those specified in sub-paragraph (2) shall be calculated based on a unit rate of RM1.00 per square metre or part thereof of the floor area subject to a minimum of RM100.00 per plan.

(2) Fees for the consideration of plans submitted for approval in respect of fence, platform, staging, gate, post, pillar, frame, hoarding, slip or any structure support or foundation connected to the foregoing, shall be RM50.00 per plan.

(3) Notwithstanding sub-paragraph (1) the local authority may divide its area into two or more parts or classify buildings into two or more types and impose such fees based on a fraction or multiple of the unit rate and minimum fee specified in sub-paragraph (1).

#### **Buildings approved on a temporary basis and tentative sketch plans**

2. In respect of plans of a building submitted for approval on a temporary year to year basis and tentative sketch plans submitted for approval in principle, one half of the fee specified in paragraph 1 shall be payable.

#### **Sheds with open sides**

3. For plans submitted for approval of a shed type of building having all its sides open, one half fees specified in paragraph 1 shall be payable.

#### **Open basements**

4. For plans submitted for approval of basement exceeding 2.5 metres in height which are open on all sides (excepting where retaining walls occur) one half of the fees specified in paragraph 1 shall be payable.

**Buildings of warehouse class**

5. For every building of the warehouse or godown class of which no part is intended for habitation (other than provision for a watchman) and which is not constructed in reinforced concrete or structural steel, one half of the fees specified in paragraph 1 shall be payable.

**Alterations to existing buildings**

6.—(1) For plans submitted for approval of alterations to existing buildings, one half of the fees specified in paragraph 1 shall be payable.

(2) If the alterations to an existing building are generally spread over the whole area of the building, then the fee payable shall be computed on the whole area of the building, but if a clear sub-division of the building is not affected by the alteration scheme, such unaffected sub-division shall be excluded from the area on which the fee shall be computed.

(3) If a storey of any existing building is not affected by alteration to the building, such storey shall be excluded from the areas on which the fee payable for the alterations shall be computed.

(4) If the alterations to an existing building involve an alteration to the frontage line or elevation to a street (where such elevation abuts a street) the following fees shall be paid on submission of plans for such alterations in addition to the fees payable under sub-paragraphs (1), (2) and (3)—

|     |                                 |   |                    |
|-----|---------------------------------|---|--------------------|
| (a) | alterations to frontage line    | — | RM18.00 per storey |
| (b) | alterations to street elevation | — | RM18.00 per storey |

**Wharves, bridges, etc.**

7. For plans submitted for approval of wharves, bridges or other special buildings, the fee payable shall be RM25.00 per 10 square metres or part thereof.

### **Retaining walls**

8. For plans submitted for approval of retaining walls, the fee payable shall be RM3.00 per 10 square metres or part thereof, of its total elevational area measured from the top of the footings.

### **Series or rows of building**

9. For a series or row of buildings of the same plan and materials when plans are submitted for approval at the same time, the fees specified in the preceding paragraphs shall be made on the following basis—

|                         |   |             |
|-------------------------|---|-------------|
| first building          | — | full fees   |
| second building onwards | — | 50% of fees |

### **Amendment plan to an approved plan**

10.—(1) When an amendment plan to an approved plan is submitted for approval, a fee of RM50.00 shall be payable for each such amendment plan.

(2) If an amendment to an approved plan involves additional area, then such additional area shall be charged on the basis set out in paragraph 1 in addition to the fee specified in sub-paragraph (1).

(3) If the amendments to an approved plan are in the opinion of the local authority substantial, a fee equal to one half of the fee chargeable under paragraph 1 in respect of the approved plan shall be payable in addition to any fees payable under sub-paragraphs (1) and (2).

### **Inspection of Plans**

11.—(1) An approved plan may be inspected in the office of the local authority subject to the payments of the prescribed fee.

(2) An approved plan may be copied in the office of the local authority subject to the applicant submitting with his application to copy such plan the written consent of the owner of the building.

(3) The fees payable shall be as follows—

- |     |                                                 |   |                                                   |
|-----|-------------------------------------------------|---|---------------------------------------------------|
| (a) | for inspecting an approved plan                 | — | RM10.00 per sheet subject to a minimum of RM50.00 |
| (b) | for copying and endorsement of an approved plan | — | RM10.00 per sheet subject to a minimum of RM50.00 |

(4) The fee for an endorsement by the local authority to certify any copy as a true copy of an approved plan shall be RM50.00 per copy.

*[Am. Swk. L.N. 95/2001.]*

#### **Permits for minor works in lieu of plans**

12. Fees for permits issued under bylaw 14 shall be payable as follows—

- |                                                                                                                          |   |                    |
|--------------------------------------------------------------------------------------------------------------------------|---|--------------------|
| for minor erections, alterations and additions under bylaw 14(1) thereof and for erection of any fence under bylaw 14(2) | — | RM50.00 per permit |
|--------------------------------------------------------------------------------------------------------------------------|---|--------------------|

#### **Temporary permits**

13. The following fees shall be payable for the temporary permits issued under bylaw 15—

- |     |                                                                                  |   |                                                     |
|-----|----------------------------------------------------------------------------------|---|-----------------------------------------------------|
| (a) | shed for shows                                                                   | — | RM 50.00 per day                                    |
| (b) | place for worship                                                                | — | RM 20. 00 per day                                   |
| (c) | depositing building materials on streets with the consent of the local authority | — | RM 50.00 per square metre per month or part thereof |
| (d) | builder's working shed store or other shed in connection with new building       | — | RM100.00 per shed per 6 months or part thereof      |

|     |                                                                                                     |   |                                   |
|-----|-----------------------------------------------------------------------------------------------------|---|-----------------------------------|
| (e) | scaffolding erected on a street                                                                     | — | RM50.00 per month or part thereof |
| (f) | staging, framework, platform or temporary structure of any kind erected on a roof abutting a street | — | RM50.00 per month or part thereof |
| (g) | hoarding on streets or footways in connection with building works                                   |   | RM50.00 per year                  |
| (h) | any building for which a temporary permit has been issued under bylaw 15(3)                         |   | RM50.00 per permit per year       |

#### **Temporary occupations permits**

14. Fees for issue of a temporary occupation permit under bylaw 22(1) shall be charged at the rate of 20% of the fee prescribed in paragraph 1 based on the floor area to be occupied.

#### **Refund of plan fees**

15.—(1) One half of the fees paid on the submission plans shall be refunded on application when—

- (a) a plan is withdrawn before approval by the local authority within one year of submission; or
- (b) a plan is not approved by the local authority; or
- (c) notice of abandonment is received within one year after the date of approval of plan:

Provided that no fees will be refunded if the plans have been abandoned under section 8(9) of the Ordinance.

*[Am. Swk. L.N. 95/2001.]*

- (2) Full fees shall be payable if a plan is re-submitted.

**Additional copy of notice or permit**

16. The fee for each additional copy of any notice, certificate or permit shall be RM50.00.

**Work commenced before approval of plan**

17. In all cases where work has been commenced before plans have been approved or a permit obtained a fee equal to not less than five times but not exceeding twenty times that specified in the relevant preceding paragraph may be charged. The payment of this enhanced fee will not exempt any person from being prosecuted by the local authority should it decides to do so.

*[Am. Swk. L.N. 95/2001.]*

**Inspection, copying and certification of prescribed form**

- 18.—(1) Any prescribed form in Schedule B which has been submitted to the local authority or which has been issued by it, as the case may be, may be inspected and copied in the office of the local authority on payment of the following fees:

- |     |                                   |                   |
|-----|-----------------------------------|-------------------|
| (a) | for inspecting a prescribed form— | RM10.00 per form; |
| (b) | for copying a prescribed form—    | RM10.00 per form. |

- (2) The fee for an endorsement by the local authority to certify any copy of a prescribed form in Schedule B which has been submitted to the local authority or issued by it, as a true copy, shall be RM20.00 per form.

*[Ins. Swk. L.N. 95/2001.]*

*SCHEDULE B*

FORMS

**FORM A**

CERTIFICATE OF BUILDINGS/STRUCTURAL PLANS

*(For endorsement on plans to be submitted for approval)*

(Issued under bylaws 1(1)(c) and 12(2))

Date: .....

To: ..... Council,

.....

I hereby certify that the details in the plans viz:

on Lot/s .....

Section .....

at .....

for .....

are in accordance with requirements of the Building Bylaws contained in the Fourth Schedule to the Buildings Ordinance, 1994, and I accept responsibility for design of these work.

.....

*Signature of submitting person*

Name:

Address:

Registration No.:

Class:

**FORM B****CERTIFICATION OF STRUCTURE***(For renovation of existing structure)*

(Issued under bylaws 1(1)(c) and 12(2))

Date: .....

To: ..... Council,

.....

I have carried out study and investigation of the existing structure affected by the proposed works as detailed in the

plan viz: .....

on Lot(s) ..... Section/Block .....

at .....

for .....

and found out that the existing structure is sound and able to be renovated as shown on drawings submitted above and I accept full responsibility accordingly.

.....

*Engineer*

Name:

Address:

Registration No.:

Class:



**FORM C**  
**NOTICE OF COMMENCEMENT/RESUMPTION**  
**OF BUILDING OPERATIONS**  
(Issued under bylaw 18)

Date: .....

To: ..... Council,  
.....

I hereby give notice that after the expiration of 4 days from  
the date of receipt of this notice, I intend to commence/  
resume building operation viz: .....  
on Lot/s .....  
Section .....  
at .....  
for .....  
in accordance with the Approved Plan No. ....

.....  
*Signature of submitting  
person*

Name:

Address:

Registration No.:

Class:

**FORM D****NOTICE OF COMPLETION OF SETTING OUT**

(Issued under bylaw 19(1))

Date: .....

To: ..... Council,

.....

I hereby certify that the setting out of the building/s viz:

.....

on Lot/s .....

Section .....

at .....

for .....

has been carried out in accordance with the—

(a) approved plans; or

(b) approved plans with amendments for which I undertake to submit amended plans for endorsement/ approval before the building is completed.

I further accept responsibility for ensuring that the setting of the building/s will be in accordance with all the town planning and building requirements of the Building Bylaws contained in the Fourth Schedule to the Buildings Ordinance, 1994.

.....

*Signature of submitting  
person*

Name:

Address:

Registration No.:

Class:

**FORM E**  
**NOTICE OF COMPLETION OF EXCAVATION**  
**FOR FOUNDATIONS**  
(Issued under bylaw 20)

Date: .....

To: ..... Council,  
.....

I give notice that the excavation works on the foundations of  
the building/s namely: .....

on Lot/s .....

Section ..... at .....

have been completed in reference of the approved  
Building Plan No.: .....and in accordance with  
Structural Plan No. .... dated .....

I certify that the soil conditions as exposed by the excavations  
are consistent with the design criteria used and I accept  
responsibility for compliance with the Building Bylaws  
contained in the Fourth Schedule to the Buildings Ordinance,  
1994.

.....

*Signature of submitting  
person*

Name:

Address:

Registration No.:

Class:

**FORM F****APPLICATION FOR THE ISSUE OF OCCUPATION  
PERMIT**

(Issued under bylaw 21(1)(a))

Date: .....

To: ..... Council,

.....

I/We hereby give notice that the building/s viz: .....

.....  
on Lot ..... Section .....

at .....

for .....

has/have been completed in accordance with the Approved  
Building/Structural Plan No. .... dated  
..... and I/We hereby apply for  
Occupation Permit.I/We hereby certify that supervision of the erection and  
completion of the building/s had been carried out by me/us  
and supervisory staff under my/our control and that to the  
best of my/our knowledge and belief such work/s is/are in  
accordance with the approved Building and Structural Plans  
and generally in accordance with the specifications and sound  
engineering practice and that I/we accept responsibility  
accordingly for those portions with which I/we am/are  
respectively concerned.

.....

*Signature of submitting person*

Name:

Address:

Registration No.:

Class:

**FORM G**  
**OCCUPATION PERMIT**  
(Issued under bylaw 21(1))

Date: .....

Ref:

To:

Pursuant to the certification in Forms .....  
submitted by the Qualified Persons/your Consultants the  
following building(s) .....

erected on Lot(s) ..... Section/Block  
..... at..... has/have  
been inspected and found to be satisfactorily completed in  
accordance with the approved plans No. ....

Accordingly, the aforesaid building can be occupied for the  
purpose as stated in the approved plans.

2. This permit shall not in any way be held to impose any  
liability whatsoever on the Council or on any officer thereof  
for any loss or damage that may be caused through any part  
of the above-mentioned building not being designed or built  
in a proper and workmanlike manner or being erected  
otherwise than in accordance with the approved plans and/or  
in compliance with the provisions of the Building Bylaws  
contained in the Fourth Schedule to the Buildings Ordinance,  
1994.

**REMARKS:**

..... Council,  
.....

**FORM H**  
**TEMPORARY OCCUPATION PERMIT**  
 (Issued under bylaw 22(1))

Date: .....

Ref:

To:

Pursuant to the certification in Forms .....

submitted by the Qualified Persons/your Consultants the  
 following building(s): .....

.....

erected on Lot(s) ..... Section/Block .....

at ..... has/

have been inspected and found to have been satisfactorily

completed in accordance with the approved plans No.: .....

..... Accordingly, the aforesaid building  
 can be occupied for a period not exceeding six (6) months  
 from the date hereof, subject to the following conditions—

2. This permit shall not in any way be held to impose any  
 liability whatsoever on the Council or on any officer thereof  
 for any loss or damage that may be caused through any part  
 of the above-mentioned building not being designed or built  
 in a proper and workmanlike manner or being erected  
 otherwise than in accordance with the approved plans and/or  
 in compliance with the provisions of the Building Bylaws  
 contained in the Fourth Schedule to the Buildings Ordinance,  
 1994.

..... Council,

.....

**FORM I**  
**PARTIAL OCCUPATION PERMIT**  
(Issued under bylaw 23(1))

Date: .....

Ref:

To:

Pursuant to the certification in Forms.....

submitted by the Qualified Persons/your Consultants,  
part(s) of the following building, namely:

.....

..... erected at Lot(s) .....

Section/Block: ..... at .....

..... has/have  
been inspected and found to be satisfactorily completed in  
accordance with the approved plans No.: .....

Accordingly, that part(s) of the aforesaid building can be  
occupied for the purpose as stated in the approved plans.

2. This permit is valid until the whole of the above-  
mentioned building is completed and an Occupation Permit is  
issued by the Council.

3. This permit shall not in any way be held to impose any  
liability whatsoever on the Council or on any officer thereof  
for any loss or damage that may be caused through any part  
of the above-mentioned building not being designed or built  
in a proper and workmanlike manner or being erected  
otherwise than in accordance with the approved plans and/or  
in compliance with the provisions of the Building Bylaws  
contained in the Fourth Schedule to the Buildings Ordinance,  
1994.

..... Council,

.....

*SCHEDULE C*MECHANICAL VENTILATION AND  
AIR CONDITIONING SYSTEM

(Bylaws 34(3) and (4), 76(a) and 82)

**Interpretation**

1. In this Schedule—

“air changes” means the hourly replacement of the volumetric content of air within an enclosure;

“l/s” means litre of air per second;

“cmh” means cubic metre of air per hour;

“enclosure” means room, ward, toilet, theatre, auditorium or any similarly enclosed space;

“foul air” means vitiated air and includes exhaust air from lavatories, bathrooms, urinals, toilets, kitchen, canteens, chemical stores, restaurants, hairdresser shops, laboratories, dark rooms, battery rooms, car parks or similar areas and air discharged from smoke extract systems associated with fire protection services of buildings;

“outdoor air” means normal fresh air taken from the external atmosphere not unduly affected by odours, smoke, effluents, dust, vapours, fumes, discharges from mechanical plant and similar artificial influences which may affect the outdoor air in any manner of form, nor previously circulated through the system;

“outdoor air changes” means air changes per hour and shall constitute that proportion of the air change which is wholly fresh air;

“occupancy” means the number of persons occupying an enclosure, the average rate of which shall be the equivalent of one person occupying an enclosure for a continuous period of twenty minutes in any one hour.



### **Openings for mechanical ventilation for air-conditioning system**

2. Where mechanical ventilation or air-conditioning is provided—

(a) foul air shall not be discharged into an airwell and this requirement shall not be applicable to window room units in residential applications;

(b) the underside of openings for the entry of air into any mechanical ventilation of air-conditioning plant shall be not less than 1 metre from any external pavement, road way, ground level or similar external surface;

(c) the underside of openings for the exhaust of air from any mechanical ventilation of air-conditioning plant shall be not less than 2.5 metre from any external pavement, road way, ground level or similar external surface; and

(d) to any of the enclosures from which foul air will be exhausted, the ducts, trunking, service shafts or other such items containing or conveying the foul air from such enclosure shall in no way be connected to any air inlet system.

### **Mechanical ventilation system in basement areas**

3.—(1) Basement and other enclosures below ground level used for working areas or for occupancy of more than two hours duration shall be provided with mechanical ventilation having a minimum of six air changes per hour or 10 l/s per person whichever is the greater.

(2) Basement or underground car parks shall be provided with mechanical ventilation such that the air exhausted to the external atmosphere should constitute not less than six air changes per hour or 7.5 l/s per square metre whichever is the greater. Air extract openings shall be located not less than 0.5 metre above ground level.

### **Filtration**

4.—(1) Unless otherwise specified, where air-conditioning is mentioned herein, it shall be deemed to include air filtration down to a particle size of ten microns with an efficiency of not less than 70% arrestance.

(2) Filters for the removal of airborne bacteria shall be provided for all exhaust air discharge points to the requirements of the governing health authority.

(3) Exhaust foul air discharge points shall be at high or roof level and shall not in any case be lower than 5 metres from the external ground or pavement level.

### **Windowless rooms**

5. Habitable rooms with no external walls and other enclosures shall be provided with mechanical ventilation or air-conditioning having a minimum outdoor air change at the rate of 7.5 l/s per person, but in no case less than that specified in ASHRAE Standard 62-1981R.

### **Hospitals**

6.—(1) Isolation wards and other such areas for infectious, contagious or other dangerous diseases shall be provided with mechanical ventilation or air-conditioning having a minimum outdoor air change at the rate of 7.5 l/s per person.

(2) Operating theatres and anesthetic rooms should be dealt with by combined input and extract systems to provide at least ten complete air changes per hour, or 15 l/s per person whichever is greater. It is essential that the relative quantities of input to extract air should be such that there is an outward movement of air from the operating theatre and anesthetic room.

(3) Supply air discharge should be at high level with extraction at low level. Recirculation arrangements should not be provided. The incoming air should be filtered and air-conditioned (the theatre temperature being capable of adjustment with mechanical requirements within the range of 20° celcius to 25° celcius). Humidity of the air in the rooms should be controlled to within the range of 55% to 65% RH.

(4) Sterilizing rooms whether part of or separate from the operating theatre should be dealt with in the similar manner to cater for the use of the operating theatre except that humidity control is not required. Extract should be at high level to ensure the removal of water vapour rising from the sterilizers.

(5) X-ray rooms and dark rooms should be provided with a minimum rate of ventilation of six complete air changes per hour and the temperature within the space should be maintained within the range of 20° celcius to 25° celcius.

### **Projection rooms**

7. Cinemas or other projection rooms where photographic films is being used, processed or stored, which are situated in the internal portion of the buildings, and in respect of which no such external walls (or those overlooking verandahs, pavements or walkways) are present, shall be provided with mechanical ventilation or air-conditioning, and all plant conveying extract or exhaust air shall not be combined in any way to other such plant serving the auditorium or any other parts of the premises.

### **Waterclosets and toilets**

8. Water closets, toilets, lavatories, bathrooms, latrines, urinals or similar rooms or enclosures used for ablutions which are situated in the internal portion of the building and in respect of which no such external walls (or those overlooking verandahs, pavements or walkways) are present, shall be provided with mechanical ventilation or air-conditioning having a minimum of outdoor air change at the rate of 25 l/s per person or ten air changes per hour, whichever is the greater.

### **Room air-conditioning units**

9. Where window or wall mounted room air-conditioning units are provided as means of air-conditioning, such units shall be capable of continuously introducing outdoor air.

### **Any other rooms**

10. Where rooms or enclosures in any building not specified in this Schedule are situated in the internal portions of the building and no such external walls (or those overlooking verandahs, pavements or walkways) are present, outdoor air for ventilation shall be required in accordance with ASHRAE 62-1981R.

### **Outdoor air changes**

11.—(1) The minimum scale of outdoor air ventilation in conjunction with recirculated, filtered and conditioned air shall be 7.5 l/s per person.

(2) The minimum scale of fresh air ventilation in conjunction with the mechanical ventilation systems shall be as follows—

|                                                           |   |                                                                              |
|-----------------------------------------------------------|---|------------------------------------------------------------------------------|
| Basement and garages                                      | — | minimum of 6 air changes per hour or 7.5 l/s per person whichever is greater |
| Commercial premises (excluding laundry and boiler houses) | — | 8.0 l/s per person                                                           |

|                        |   |                                                                            |
|------------------------|---|----------------------------------------------------------------------------|
| Factory and workshop   | — | 8.0l/s per person                                                          |
| Projection rooms       | — | 10 air changes per hour or 8.0<br>l/s per person                           |
| Theatre and auditorium | — | 8.0l/s per person                                                          |
| Kitchen                | — | 20 air changes per hour or 8<br>l/s per person whichever is<br>the greater |

**NOTE:** That all other areas shall meet with the minimum requirements of the ASHRAE Standard 62-1981R.

*SCHEDULE D*  
STANDARDS FOR STRUCTURAL REQUIREMENTS  
(Bylaws 51(2) and 57(2))

| <i>Reference<br/>Number</i> | <i>Title</i>                                                                                                                      |
|-----------------------------|-----------------------------------------------------------------------------------------------------------------------------------|
| MS 522                      | Specification for ordinary and rapid-hardening Port-land Cement.                                                                  |
| MS 416                      | Code of Practice for the use of structural steel in building.                                                                     |
| MS 29                       | Specification for aggregates from natural sources for concrete.                                                                   |
| MS 76                       | Specification for Bricks and Blocks of Fired Brick-earth clay or shale.                                                           |
| MS 544                      | Code of Practice for the structural use of timber.                                                                                |
| MS 415                      | Code of Practice for composite construction in structural steel and concrete.<br><br>Pt. 1: Simply supported Bearing in Building. |
| MS 523                      | Specification for ready-mixed concrete.                                                                                           |
| BS 187                      | Specification for calcium silicate (sandlime and flintlime) bricks.                                                               |
| BS 1243                     | Specification of metal ties for cavity wall construction.                                                                         |
| BS 6750                     | Specification for modular co-ordination in building.                                                                              |
| BS 1297                     | Grading and sizing of softwood flooring.                                                                                          |
| BS 4471                     | Specification for dimensions for softwood.<br><br>Pt. 1: Sizes of sawn and planed timber.                                         |
| BS 5328                     | Methods for specifying concrete, including ready mixed concrete.                                                                  |
| BS 5390                     | Code of Practice for stone masonry.                                                                                               |
| BS 5628                     | Code of Practice for use of masonry.                                                                                              |

| <i>Reference<br/>Number</i> | <i>Title</i>                                                                                       |
|-----------------------------|----------------------------------------------------------------------------------------------------|
|                             | Pt. 1: Structural unreinforced masonry                                                             |
|                             | Pt. 2: Structural use of reinforced and prestressed masonry.                                       |
|                             | Pt. 3: Materials and components, design and workmanship.                                           |
| BS 6073                     | Precast concrete masonry units.                                                                    |
|                             | Pt. 1: Specification for precast concrete masonry units.                                           |
| BS 6399                     | Design loading for buildings.                                                                      |
|                             | Pt. 1: Code of Practice for dead and imposed loads.                                                |
| BS 8110                     | The Structural use of concrete.                                                                    |
|                             | Pt. 1: Code of Practice for design and construction.                                               |
|                             | Pt. 2: Code of Practice for special circumstances.                                                 |
|                             | Pt. 3: Design charts for singly reinforced beams, double reinforced beams and rectangular columns. |
| BS 4978                     | Timber grades for structural use.                                                                  |
| BS CP 118                   | Code of Practice for the structural use of aluminium.                                              |
| BS 8004                     | Code of Practice for Foundations.                                                                  |
| BS 6649                     | Specification for clay bricks with modular dimensions.                                             |
| BS 5337                     | Code of Practice for the structural use of concrete for retaining aqueous liquid.                  |
| BS CP 3                     | Chapter V Loading.                                                                                 |
|                             | Pt. 2: Wind Loads.                                                                                 |
| BS 6649                     | Specification for clay and calcium silicate modular bricks.                                        |
| BS 5268                     | Code of Practice for the structural use of timber.                                                 |
|                             | Pt. 3: Code of Practice for trussed rafter roofs.                                                  |

*SCHEDULE E*

DESIGNATION OF PURPOSE GROUPS

(Bylaws 112, 114 and 117)

| <i>Number of<br/>purpose<br/>group</i> | <i>Descriptive<br/>title</i> | <i>Purposes for which building or<br/>compartment is intended to be used</i>                                                                                                                                                                                                                                                            |
|----------------------------------------|------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| I                                      | Small residential            | Private dwelling house detached or semi-detached (not including a flat or terraced house) not comprising more than—<br><br>(1) a ground storey;<br><br>(2) one upper storey; and<br><br>(3) a basement storey or basement storeys.                                                                                                      |
| II                                     | Institutional                | Hospital, school or other similar establishment used as living accommodation for, or for treatment, care or maintenance of, persons suffering from disabilities due to illness or old age or other physical or mental disability or under the age of 5 years, where such persons sleep in the premises.                                 |
| III                                    | Other residential            | Accommodation for residential purpose other than any premises comprised in groups I and II.                                                                                                                                                                                                                                             |
| IV                                     | Office                       | Office, or premises used for office purposes, meaning thereby the purposes of administration, clerical work (including writing, book-keeping, sorting papers, filing, typing, duplicating, machine-calculating, drawing and the editorial preparation of matter for publication), handling money and telephone and telegraph operating. |

| <i>Number of<br/>purpose<br/>group</i> | <i>Descriptive<br/>title</i> | <i>Purposes for which building or<br/>compartment is intended to be used</i>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
|----------------------------------------|------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| V                                      | Shop                         | <p>Shop, or shop premises, meaning thereby premises not being a shop but used for the carrying on there of retail trade or business</p> <p>(including the sale to members of the public of food or drink for immediate consumption, retail sales by auction, the business of lending books or periodicals for the purpose of gain, and the business of a barber or hairdresser) and premises to which members of the public are invited to resort for the purpose of delivering their goods for repair or other treatment or of themselves carrying out repairs to or other treatment of goods.</p> |
| VI                                     | Factory                      | <p>Factory means all premises as defined in section 2 of the Factories and Machinery Act 1967, but excluding those buildings classified under purpose group VIII—Storage and general.</p>                                                                                                                                                                                                                                                                                                                                                                                                           |
| VII                                    | Place of assembly            | <p>Place, whether public or private, used for the attendance of persons for or in connection with their social, recreational, educational, business or other activities, and not comprised within group I to VI.</p>                                                                                                                                                                                                                                                                                                                                                                                |
| VIII                                   | Storage and general          | <p>Place for storage, deposit or parking of goods and materials (including vehicles), and other premises not comprised in groups I to VII.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                      |



## DIMENSIONS OF BUILDINGS AND COMPARTMENTS

(Bylaw 114)

| Purpose groups<br><br>(1)                             | Height of building<br><br>(2) | Limits of dimensions                                                           |                                                                          |
|-------------------------------------------------------|-------------------------------|--------------------------------------------------------------------------------|--------------------------------------------------------------------------|
|                                                       |                               | Floor area of storey in building or compartment<br>(in m <sup>2</sup> )<br>(3) | Cubic capacity of building or compartment<br>(in m <sup>3</sup> )<br>(4) |
| Part 1 — Buildings other than single storey buildings |                               |                                                                                |                                                                          |
| II (Institutional)                                    | Any height                    | 2 000                                                                          | No limit                                                                 |
| III (Other residential)                               | Not exceeding 28 m            | 3 000                                                                          | 8 500                                                                    |
| III (Other residential)                               | Exceeding 28 m                | 2 000                                                                          | 5 500                                                                    |
| V (Shop)                                              | Any height                    | 2 000                                                                          | 7 000                                                                    |
| VI (Factory)                                          | Not exceeding 28 m            | No limit                                                                       | 28 000                                                                   |
| VI (Factory)                                          | Exceeding 28 m                | 2 000                                                                          | 5 500                                                                    |
| VIII (Storage and general)                            | Not exceeding 28 m            | No limit                                                                       | 21 000                                                                   |
| VIII (Storage and general)                            | Exceeding 28 m                | 1 000                                                                          | No limit                                                                 |
| Part 2 — Single storey buildings                      |                               |                                                                                |                                                                          |
| II (Institutional)                                    | Any height                    | 3 000                                                                          | No limit                                                                 |
| III (Other residential)                               | Any height                    | 3 000                                                                          | No limit                                                                 |

NOTE: Purpose Group I, IV and VII are excluded as there are no limits applicable under bylaw 117.

*SCHEDULE F*

## CALCULATION OF PERMITTED LIMITS OF UNPROTECTED AREAS

(Bylaws 111, 121(2) and 124)

## PART I

## GENERAL RULES

1. The permitted limit of unprotected areas in any side of a building or compartment shall be calculated by reference to the requirements of Part II, III or IV.
2. In calculating the size of unprotected areas or the permitted limit of unprotected areas, the following provisions shall apply—
  - (a) where any part of an external wall is an unprotected area, only because it has combustible material attached to it as cladding, the area of that unprotected area shall be deemed to be half the area of such cladding;
  - (b) no account shall be taken of any of the following—
    - (i) an unprotected area unless it is an area specified in subparagraph (iii) hereof, which does not exceed 0.1 square metre and which is not less than 1.5 metres from any other unprotected area in the same side of the building or compartment;
    - (ii) one or more unprotected areas having an area, or if more than one, an aggregate area not exceeding 1 square metre and not less than 4 metres from any other unprotected area in the same side of the building or compartment, except any such area as is specified in subparagraph (i) above;
    - (iii) an unprotected area in any part of an external wall which forms part of a protected shaft; and
    - (iv) an unprotected area in the side of a building not divided into compartments, if the area is not less than 28 metres above any ground adjoining that side of the building.

## PART II

### RULES FOR CALCULATION BY REFERENCE TO AN ENCLOSING RECTANGLE

1. The conditions of this Part shall be satisfied if a building or compartment is so situated that no point on the relevant boundary is either between the relevant plane of reference and the side of the building or compartment or at a distance from the relevant plane of reference which is less than the distance specified in the Tables to this Part, according to the purpose group of the building or compartment, the dimensions of the enclosing rectangle and the unprotected percentage.

2. For the purposes of this Part—

“plane of reference” means any vertical plane which touches the side or some part of the side of a building or compartment, but which (however far extended) does not pass within the structure of such building or compartment (and for this purpose, any balcony, coping of similar projection shall be deemed not to be part either of the side or of the structure) and the relevant plane of reference shall in each case be taken as the most favourable in that respect to the person erecting the building;

“enclosing rectangle” means the smallest rectangle on the relevant plane of reference which would—

(a) enclose all the outer edges of any unprotected areas of the building or, if the building is divided into compartments, of the compartment (other than any part of unprotected area which is at angle of more than 80° to the plane of reference), the outer edges being for this purpose projected on the plane of reference by lines perpendicular to such plane;

(b) have two horizontal sides; and

(c) have height and width falling within those listed in the Tables to this Part;

“unprotected percentage” means the percentage of the area of the enclosing rectangle which is equal to the aggregate of the unprotected areas taken into account in calculating the enclosing rectangle and as projected on it.

## TABLES TO PART II

TABLE I—BUILDINGS OR COMPARTMENTS OF PURPOSE GROUPS

I (Small Residential), II (Institutional), III (Other Residential),  
IV (Office) and VII (Assembly)

| Width of<br>enclosing<br>rectangle in<br>metres | Distance in metres from relevant boundary for unprotected percentage not<br>exceeding |    |    |    |    |    |    |    |     |
|-------------------------------------------------|---------------------------------------------------------------------------------------|----|----|----|----|----|----|----|-----|
|                                                 | 20                                                                                    | 30 | 40 | 50 | 60 | 70 | 80 | 90 | 100 |

## Enclosing rectangle 3 m high

|          |     |     |     |     |     |     |     |     |     |
|----------|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| 3        | 1.0 | 1.0 | 1.0 | 1.5 | 1.5 | 1.5 | 2.0 | 2.0 | 2.0 |
| 6        | 1.0 | 1.0 | 1.5 | 2.0 | 2.0 | 2.0 | 2.5 | 2.5 | 3.0 |
| 9        | 1.0 | 1.0 | 1.5 | 2.0 | 2.5 | 2.5 | 3.0 | 3.0 | 3.5 |
| 12       | 1.0 | 1.5 | 2.0 | 2.0 | 2.5 | 3.0 | 3.0 | 3.5 | 3.5 |
| 15       | 1.0 | 1.5 | 2.0 | 2.5 | 2.5 | 3.0 | 3.5 | 3.5 | 4.0 |
| 18       | 1.0 | 1.5 | 2.0 | 2.5 | 2.5 | 3.0 | 3.5 | 4.0 | 4.0 |
| 21       | 1.0 | 1.5 | 2.0 | 2.5 | 3.0 | 3.0 | 3.5 | 4.0 | 4.5 |
| 24       | 1.0 | 1.5 | 2.0 | 2.5 | 3.0 | 3.5 | 3.5 | 4.0 | 4.5 |
| 27       | 1.0 | 1.5 | 2.0 | 2.5 | 3.0 | 3.5 | 4.0 | 4.0 | 4.5 |
| 30       | 1.0 | 1.5 | 2.0 | 2.5 | 3.0 | 3.5 | 4.0 | 4.0 | 4.5 |
| 40       | 1.0 | 1.5 | 2.0 | 2.5 | 3.0 | 3.5 | 4.0 | 4.0 | 5.0 |
| No limit | 1.0 | 1.5 | 2.0 | 2.5 | 3.0 | 3.5 | 4.0 | 4.0 | 5.0 |

## Enclosing rectangle 6 m high

|          |     |     |     |     |     |     |     |     |      |
|----------|-----|-----|-----|-----|-----|-----|-----|-----|------|
| 3        | 1.0 | 1.0 | 1.5 | 2.0 | 2.0 | 2.0 | 2.5 | 2.5 | 3.0  |
| 6        | 1.0 | 1.5 | 2.0 | 2.5 | 3.0 | 3.0 | 3.5 | 4.0 | 4.0  |
| 9        | 1.0 | 2.0 | 2.5 | 3.0 | 3.5 | 4.0 | 4.5 | 4.5 | 5.0  |
| 12       | 1.5 | 2.5 | 3.0 | 3.5 | 4.0 | 4.5 | 5.0 | 5.0 | 5.5  |
| 15       | 1.5 | 2.5 | 3.0 | 4.0 | 4.5 | 5.0 | 5.5 | 5.5 | 6.0  |
| 18       | 1.5 | 2.5 | 3.5 | 4.0 | 4.5 | 5.0 | 5.5 | 6.0 | 6.5  |
| 21       | 1.5 | 2.5 | 3.5 | 4.0 | 5.0 | 5.5 | 6.0 | 6.5 | 7.0  |
| 24       | 1.5 | 2.5 | 3.5 | 4.5 | 5.0 | 5.5 | 6.0 | 7.0 | 7.0  |
| 27       | 1.5 | 2.5 | 3.5 | 4.5 | 5.0 | 6.0 | 6.5 | 7.0 | 7.5  |
| 30       | 1.5 | 2.5 | 3.5 | 4.5 | 5.0 | 6.0 | 6.5 | 7.0 | 8.0  |
| 40       | 1.5 | 2.5 | 3.5 | 4.5 | 5.5 | 6.5 | 7.0 | 8.0 | 8.5  |
| 50       | 1.5 | 2.5 | 3.5 | 4.5 | 5.5 | 6.5 | 7.5 | 8.0 | 9.0  |
| 60       | 1.5 | 2.5 | 3.5 | 5.0 | 5.5 | 6.5 | 7.5 | 8.5 | 9.5  |
| 80       | 1.5 | 2.5 | 3.5 | 5.0 | 6.0 | 7.0 | 7.5 | 8.5 | 9.5  |
| 100      | 1.5 | 2.5 | 3.5 | 5.0 | 6.0 | 7.0 | 8.0 | 8.5 | 10.0 |
| No limit | 1.5 | 2.5 | 3.5 | 5.0 | 6.0 | 7.0 | 8.0 | 8.5 | 10.0 |

| Width of enclosing rectangle in metres | Distance in metres from relevant boundary for unprotected percentage not exceeding |    |    |    |    |    |    |    |     |
|----------------------------------------|------------------------------------------------------------------------------------|----|----|----|----|----|----|----|-----|
|                                        | 20                                                                                 | 30 | 40 | 50 | 60 | 70 | 80 | 90 | 100 |

Enclosing rectangle 9 m high

|          |     |     |     |     |     |      |      |      |      |
|----------|-----|-----|-----|-----|-----|------|------|------|------|
| 3        | 1.0 | 1.0 | 1.5 | 2.0 | 2.5 | 2.5  | 3.0  | 3.0  | 3.5  |
| 6        | 1.0 | 2.0 | 2.5 | 3.0 | 3.5 | 4.0  | 4.5  | 4.5  | 5.0  |
| 9        | 1.5 | 2.5 | 3.5 | 4.0 | 4.5 | 5.0  | 5.5  | 5.5  | 6.0  |
| 12       | 1.5 | 3.0 | 3.5 | 4.5 | 5.0 | 5.5  | 6.0  | 6.5  | 7.0  |
| 15       | 2.0 | 3.0 | 4.0 | 5.0 | 5.5 | 6.0  | 6.5  | 7.0  | 7.5  |
| 18       | 2.0 | 3.5 | 4.5 | 5.0 | 6.0 | 6.5  | 7.0  | 8.0  | 8.5  |
| 21       | 2.0 | 3.5 | 4.5 | 5.5 | 6.5 | 7.0  | 7.5  | 8.5  | 9.0  |
| 24       | 2.0 | 3.5 | 5.0 | 5.5 | 6.5 | 7.5  | 8.0  | 9.0  | 9.5  |
| 27       | 2.0 | 3.5 | 5.0 | 6.0 | 7.0 | 7.5  | 8.5  | 9.5  | 10.0 |
| 30       | 2.0 | 3.5 | 5.0 | 6.0 | 7.0 | 8.0  | 9.0  | 9.5  | 10.5 |
| 40       | 2.0 | 3.5 | 5.5 | 6.5 | 7.5 | 8.5  | 9.5  | 10.5 | 11.5 |
| 50       | 2.0 | 4.0 | 5.5 | 6.5 | 8.0 | 9.0  | 10.0 | 11.5 | 12.5 |
| 60       | 2.0 | 4.0 | 5.5 | 7.0 | 8.0 | 9.5  | 11.0 | 11.5 | 13.0 |
| 80       | 2.0 | 4.0 | 5.5 | 7.0 | 8.5 | 10.0 | 11.5 | 12.5 | 13.5 |
| 100      | 2.0 | 4.0 | 5.5 | 7.0 | 8.5 | 10.0 | 11.5 | 12.5 | 14.5 |
| 120      | 2.0 | 4.0 | 5.5 | 7.0 | 8.5 | 10.0 | 11.5 | 12.5 | 14.5 |
| No limit | 2.0 | 4.0 | 5.5 | 7.0 | 8.5 | 10.5 | 12.0 | 12.5 | 15.0 |

Enclosing rectangle 12 m high

|          |     |     |     |     |      |      |      |      |      |
|----------|-----|-----|-----|-----|------|------|------|------|------|
| 3        | 1.0 | 1.5 | 2.0 | 2.0 | 2.5  | 3.0  | 3.0  | 3.5  | 3.5  |
| 6        | 1.5 | 2.5 | 3.0 | 3.5 | 4.0  | 4.5  | 5.0  | 5.0  | 5.5  |
| 9        | 1.5 | 3.0 | 3.5 | 4.5 | 5.0  | 5.5  | 6.0  | 6.5  | 7.0  |
| 12       | 1.5 | 3.5 | 4.5 | 5.0 | 6.0  | 6.5  | 7.0  | 7.5  | 8.0  |
| 15       | 2.0 | 3.5 | 5.0 | 5.5 | 6.5  | 7.0  | 8.0  | 8.5  | 9.0  |
| 18       | 2.5 | 4.0 | 5.0 | 6.0 | 7.0  | 7.5  | 8.5  | 9.0  | 10.0 |
| 21       | 2.5 | 4.0 | 5.5 | 6.5 | 7.5  | 8.5  | 9.0  | 10.0 | 10.5 |
| 24       | 2.5 | 4.5 | 6.0 | 7.0 | 8.0  | 8.5  | 9.5  | 10.5 | 11.5 |
| 27       | 2.5 | 4.5 | 6.0 | 7.0 | 8.0  | 9.0  | 10.5 | 11.0 | 12.0 |
| 30       | 2.5 | 4.5 | 6.5 | 7.5 | 8.5  | 9.5  | 10.5 | 11.5 | 12.5 |
| 40       | 2.5 | 5.0 | 6.5 | 8.0 | 9.5  | 10.5 | 12.0 | 13.0 | 14.0 |
| 50       | 2.5 | 5.0 | 7.0 | 8.5 | 10.0 | 11.0 | 13.0 | 14.0 | 15.0 |
| 60       | 2.5 | 5.0 | 7.0 | 9.0 | 10.5 | 12.0 | 13.5 | 14.5 | 16.0 |
| 80       | 2.5 | 5.0 | 7.0 | 9.0 | 11.0 | 13.0 | 14.5 | 16.0 | 17.0 |
| 100      | 2.5 | 5.0 | 7.5 | 9.5 | 11.5 | 13.5 | 15.0 | 16.5 | 18.0 |
| 120      | 2.5 | 5.0 | 7.5 | 9.5 | 11.5 | 13.5 | 15.0 | 17.0 | 18.5 |
| No limit | 2.5 | 5.0 | 7.5 | 9.5 | 12.0 | 14.0 | 15.5 | 17.0 | 19.0 |

| <i>Width of enclosing rectangle in metres</i> | <i>Distance in metres from relevant boundary for unprotected percentage not exceeding</i> |    |    |    |    |    |    |    |     |
|-----------------------------------------------|-------------------------------------------------------------------------------------------|----|----|----|----|----|----|----|-----|
|                                               | 20                                                                                        | 30 | 40 | 50 | 60 | 70 | 80 | 90 | 100 |

## Enclosing rectangle 15 m high

|          |     |     |     |      |      |      |      |      |      |
|----------|-----|-----|-----|------|------|------|------|------|------|
| 3        | 1.0 | 1.5 | 2.0 | 2.5  | 2.5  | 3.0  | 3.5  | 3.5  | 4.0  |
| 6        | 1.5 | 2.5 | 3.0 | 4.0  | 4.5  | 5.0  | 5.5  | 5.5  | 6.0  |
| 9        | 2.0 | 3.0 | 4.0 | 5.0  | 5.5  | 6.0  | 6.5  | 7.0  | 7.5  |
| 12       | 2.0 | 3.5 | 5.0 | 5.5  | 6.5  | 7.0  | 8.0  | 8.5  | 9.0  |
| 15       | 2.0 | 4.0 | 5.5 | 6.5  | 7.0  | 8.0  | 9.0  | 9.5  | 10.0 |
| 18       | 2.5 | 4.5 | 6.0 | 7.0  | 8.0  | 8.5  | 9.5  | 10.5 | 11.0 |
| 21       | 2.5 | 5.0 | 6.5 | 7.5  | 8.5  | 9.5  | 10.5 | 11.0 | 12.0 |
| 24       | 3.0 | 5.0 | 6.5 | 8.0  | 9.0  | 10.0 | 11.0 | 12.0 | 13.0 |
| 27       | 3.0 | 5.5 | 7.0 | 8.5  | 9.5  | 10.5 | 11.5 | 12.5 | 13.5 |
| 30       | 3.0 | 5.5 | 7.5 | 8.5  | 10.0 | 11.0 | 12.0 | 13.5 | 14.0 |
| 40       | 3.0 | 6.0 | 8.0 | 9.5  | 11.0 | 12.5 | 13.5 | 15.0 | 16.0 |
| 50       | 3.5 | 6.0 | 8.5 | 10.0 | 12.0 | 13.5 | 15.0 | 16.5 | 17.5 |
| 60       | 3.5 | 6.5 | 8.5 | 10.5 | 12.5 | 14.0 | 15.5 | 17.0 | 18.0 |
| 80       | 3.5 | 6.5 | 9.0 | 11.0 | 13.5 | 15.0 | 17.0 | 18.5 | 20.0 |
| 100      | 3.5 | 6.5 | 9.0 | 11.5 | 14.0 | 16.0 | 18.0 | 19.5 | 21.5 |
| 120      | 3.5 | 6.5 | 9.0 | 11.5 | 14.0 | 16.5 | 18.5 | 20.5 | 22.5 |
| No limit | 3.5 | 6.5 | 9.0 | 12.0 | 14.5 | 17.0 | 19.0 | 21.0 | 23.0 |

## Enclosing rectangle 18 m high

|          |     |     |      |      |      |      |      |      |      |
|----------|-----|-----|------|------|------|------|------|------|------|
| 3        | 1.0 | 1.5 | 2.0  | 2.5  | 2.5  | 3.0  | 3.5  | 4.0  | 4.0  |
| 6        | 1.5 | 2.5 | 3.5  | 4.0  | 4.5  | 5.0  | 5.5  | 6.0  | 6.5  |
| 9        | 2.0 | 3.5 | 4.5  | 5.0  | 6.0  | 6.5  | 7.0  | 8.0  | 8.5  |
| 12       | 2.5 | 4.0 | 5.0  | 6.0  | 7.0  | 7.5  | 8.5  | 9.0  | 10.0 |
| 15       | 2.5 | 4.5 | 6.0  | 7.0  | 8.0  | 8.5  | 9.5  | 10.5 | 11.0 |
| 18       | 2.5 | 5.0 | 6.5  | 7.5  | 8.5  | 9.5  | 11.0 | 11.5 | 13.0 |
| 21       | 3.0 | 5.5 | 7.0  | 8.0  | 9.5  | 10.5 | 11.5 | 12.5 | 13.0 |
| 24       | 3.0 | 5.5 | 7.5  | 8.5  | 10.0 | 11.0 | 12.0 | 13.0 | 14.0 |
| 27       | 3.5 | 6.0 | 8.0  | 9.0  | 10.5 | 11.5 | 12.5 | 13.5 | 14.5 |
| 30       | 3.5 | 6.5 | 8.0  | 9.5  | 11.0 | 12.0 | 13.5 | 14.5 | 15.5 |
| 40       | 4.0 | 7.0 | 9.0  | 11.0 | 12.0 | 13.5 | 15.0 | 16.5 | 17.5 |
| 50       | 4.0 | 7.0 | 9.5  | 11.5 | 13.0 | 15.0 | 16.5 | 18.0 | 19.0 |
| 60       | 4.0 | 7.5 | 10.0 | 12.0 | 14.0 | 16.0 | 17.5 | 19.5 | 20.5 |
| 80       | 4.0 | 7.5 | 10.0 | 13.0 | 15.0 | 17.0 | 19.0 | 21.0 | 22.5 |
| 100      | 4.0 | 7.5 | 10.0 | 13.5 | 16.0 | 18.0 | 20.5 | 22.5 | 24.0 |
| 120      | 4.0 | 7.5 | 10.0 | 14.0 | 16.5 | 19.0 | 21.0 | 23.5 | 25.5 |
| No limit | 4.0 | 8.0 | 10.0 | 14.0 | 17.0 | 19.5 | 22.0 | 24.0 | 26.5 |

| <i>Width of enclosing rectangle in metres</i> | <i>Distance in metres from relevant boundary for unprotected percentage not exceeding</i> |           |           |           |           |           |           |           |            |
|-----------------------------------------------|-------------------------------------------------------------------------------------------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|------------|
|                                               | <i>20</i>                                                                                 | <i>30</i> | <i>40</i> | <i>50</i> | <i>60</i> | <i>70</i> | <i>80</i> | <i>90</i> | <i>100</i> |

Enclosing rectangle 21 m high

|          |     |     |      |      |      |      |      |      |      |
|----------|-----|-----|------|------|------|------|------|------|------|
| 3        | 0.5 | 1.5 | 2.0  | 2.5  | 3.0  | 3.0  | 3.5  | 4.0  | 4.5  |
| 6        | 1.5 | 2.5 | 3.5  | 4.0  | 5.0  | 5.5  | 6.0  | 6.5  | 7.0  |
| 9        | 2.0 | 3.5 | 4.5  | 5.5  | 6.5  | 7.0  | 7.5  | 8.5  | 9.0  |
| 12       | 2.5 | 4.0 | 5.5  | 6.5  | 7.5  | 8.5  | 9.0  | 10.0 | 10.5 |
| 15       | 2.5 | 5.0 | 6.5  | 7.5  | 8.5  | 9.5  | 10.5 | 11.0 | 12.0 |
| 18       | 3.0 | 5.5 | 7.0  | 8.0  | 9.5  | 10.5 | 11.5 | 12.5 | 13.0 |
| 21       | 3.0 | 6.0 | 7.5  | 9.0  | 10.0 | 11.0 | 12.5 | 13.5 | 14.0 |
| 24       | 3.5 | 6.0 | 8.0  | 9.5  | 10.5 | 12.0 | 13.0 | 14.0 | 15.0 |
| 27       | 3.5 | 6.5 | 8.5  | 10.0 | 11.5 | 13.0 | 14.0 | 15.0 | 16.0 |
| 30       | 4.0 | 7.0 | 9.0  | 10.5 | 12.0 | 13.0 | 14.5 | 16.0 | 16.5 |
| 40       | 4.5 | 7.5 | 10.0 | 12.0 | 13.5 | 15.0 | 16.5 | 18.0 | 19.0 |
| 50       | 4.5 | 8.0 | 11.0 | 13.0 | 14.5 | 16.5 | 18.0 | 20.0 | 21.0 |
| 60       | 4.5 | 8.5 | 11.5 | 13.5 | 15.5 | 17.5 | 19.5 | 21.0 | 22.5 |
| 80       | 4.5 | 8.5 | 12.0 | 14.5 | 17.0 | 19.0 | 21.0 | 23.5 | 25.0 |
| 100      | 4.5 | 9.0 | 12.0 | 15.5 | 18.0 | 20.5 | 22.5 | 25.0 | 27.0 |
| 120      | 4.5 | 9.0 | 12.0 | 16.0 | 18.5 | 21.5 | 23.5 | 26.5 | 28.5 |
| No limit | 4.5 | 9.0 | 12.0 | 16.0 | 19.0 | 22.0 | 25.0 | 26.5 | 29.5 |

Enclosing rectangle 24 m high

|          |     |      |      |      |      |      |      |      |      |
|----------|-----|------|------|------|------|------|------|------|------|
| 3        | 0.5 | 1.5  | 2.0  | 2.5  | 3.0  | 3.5  | 3.5  | 4.0  | 4.5  |
| 6        | 1.5 | 2.5  | 3.5  | 4.5  | 5.0  | 5.5  | 6.0  | 7.0  | 7.0  |
| 9        | 2.0 | 3.5  | 5.0  | 5.5  | 6.5  | 7.5  | 8.0  | 9.0  | 9.5  |
| 12       | 2.5 | 4.5  | 6.0  | 7.0  | 8.0  | 8.5  | 9.5  | 10.5 | 11.5 |
| 15       | 3.0 | 5.0  | 6.5  | 8.0  | 9.0  | 10.0 | 11.0 | 12.0 | 13.0 |
| 18       | 3.0 | 5.5  | 7.5  | 8.5  | 10.0 | 11.0 | 12.0 | 13.0 | 14.0 |
| 21       | 3.5 | 6.0  | 8.0  | 9.5  | 10.5 | 12.0 | 13.0 | 14.0 | 15.0 |
| 24       | 3.5 | 6.5  | 8.5  | 10.0 | 11.5 | 12.5 | 14.0 | 15.0 | 16.0 |
| 27       | 4.0 | 7.0  | 9.0  | 11.0 | 12.5 | 13.5 | 15.0 | 16.0 | 17.0 |
| 30       | 4.0 | 7.5  | 9.5  | 11.5 | 13.0 | 14.0 | 15.5 | 17.0 | 18.0 |
| 40       | 4.5 | 8.5  | 11.0 | 13.0 | 14.5 | 16.0 | 18.0 | 19.0 | 20.5 |
| 50       | 5.0 | 9.0  | 12.0 | 14.0 | 16.0 | 17.5 | 19.5 | 21.0 | 22.5 |
| 60       | 5.0 | 9.5  | 12.5 | 15.0 | 17.0 | 19.0 | 21.0 | 23.0 | 24.5 |
| 80       | 5.0 | 10.0 | 13.5 | 16.5 | 18.5 | 21.0 | 23.5 | 25.5 | 27.5 |
| 100      | 5.0 | 10.0 | 13.5 | 17.0 | 20.0 | 22.5 | 25.0 | 27.5 | 29.5 |
| 120      | 5.5 | 10.0 | 13.5 | 17.5 | 20.5 | 23.5 | 26.5 | 29.0 | 31.0 |
| No limit | 5.5 | 10.0 | 13.5 | 18.0 | 21.0 | 24.0 | 27.5 | 30.0 | 32.5 |

| Width of enclosing rectangle in metres | Distance in metres from relevant boundary for unprotected percentage not exceeding |    |    |    |    |    |    |    |     |
|----------------------------------------|------------------------------------------------------------------------------------|----|----|----|----|----|----|----|-----|
|                                        | 20                                                                                 | 30 | 40 | 50 | 60 | 70 | 80 | 90 | 100 |

## Enclosing rectangle 27 m high

|          |     |      |      |      |      |      |      |      |      |
|----------|-----|------|------|------|------|------|------|------|------|
| 3        | 1.0 | 1.5  | 2.0  | 2.5  | 3.0  | 3.5  | 4.0  | 4.0  | 4.5  |
| 6        | 1.5 | 2.5  | 3.5  | 4.5  | 5.0  | 6.0  | 6.5  | 7.0  | 7.5  |
| 9        | 2.0 | 3.5  | 5.0  | 6.0  | 7.0  | 7.5  | 8.5  | 9.5  | 10.0 |
| 12       | 2.5 | 4.5  | 6.0  | 7.0  | 8.0  | 9.0  | 10.5 | 11.0 | 12.0 |
| 15       | 3.0 | 5.5  | 7.0  | 8.5  | 9.5  | 10.5 | 11.5 | 12.5 | 13.5 |
| 18       | 3.5 | 6.0  | 8.0  | 9.0  | 10.5 | 11.5 | 12.5 | 13.5 | 14.5 |
| 21       | 3.5 | 6.5  | 8.5  | 10.0 | 11.5 | 13.0 | 14.0 | 15.0 | 16.0 |
| 24       | 3.5 | 7.0  | 9.0  | 11.0 | 12.5 | 13.5 | 15.0 | 16.0 | 17.0 |
| 27       | 4.0 | 7.5  | 10.0 | 11.5 | 13.0 | 14.0 | 16.0 | 17.0 | 18.0 |
| 30       | 4.0 | 8.0  | 10.0 | 12.0 | 13.5 | 15.0 | 17.0 | 18.0 | 19.0 |
| 40       | 5.0 | 9.0  | 11.5 | 13.0 | 15.5 | 17.5 | 19.0 | 20.5 | 22.0 |
| 50       | 5.5 | 9.5  | 12.5 | 15.0 | 17.0 | 19.0 | 21.0 | 22.5 | 24.0 |
| 60       | 5.5 | 10.5 | 13.5 | 16.0 | 18.5 | 20.5 | 22.5 | 24.5 | 26.5 |
| 80       | 6.0 | 11.0 | 14.5 | 17.5 | 20.5 | 22.5 | 25.0 | 27.5 | 29.5 |
| 100      | 6.0 | 11.0 | 15.5 | 19.0 | 21.5 | 24.5 | 27.0 | 30.0 | 32.0 |
| 120      | 6.0 | 11.5 | 15.5 | 19.5 | 22.5 | 26.0 | 28.5 | 32.0 | 34.0 |
| No limit | 6.0 | 11.5 | 15.5 | 20.0 | 23.5 | 27.0 | 29.5 | 33.0 | 35.0 |

Table 2—BUILDINGS OR COMPARTMENTS OF PURPOSE GROUPS  
V (Shop), VI (Factory) and VIII (Storage and General)

| Width of enclosing rectangle in metres | Distance in metres from relevant boundary for unprotected percentage not exceeding |    |    |    |    |    |    |    |     |
|----------------------------------------|------------------------------------------------------------------------------------|----|----|----|----|----|----|----|-----|
|                                        | 20                                                                                 | 30 | 40 | 50 | 60 | 70 | 80 | 90 | 100 |

## Enclosing rectangle 3 m high

|          |     |     |     |     |     |     |     |     |      |
|----------|-----|-----|-----|-----|-----|-----|-----|-----|------|
| 3        | 1.0 | 1.5 | 2.0 | 2.0 | 2.5 | 2.5 | 2.5 | 3.0 | 3.0  |
| 6        | 1.5 | 2.0 | 2.5 | 3.0 | 3.5 | 3.5 | 4.0 | 4.0 | 4.0  |
| 9        | 1.5 | 2.5 | 3.0 | 3.5 | 4.0 | 4.0 | 4.5 | 5.0 | 5.0  |
| 12       | 2.0 | 2.5 | 3.0 | 3.5 | 4.0 | 4.5 | 5.0 | 5.5 | 5.5  |
| 15       | 2.0 | 2.5 | 3.5 | 4.0 | 4.5 | 5.0 | 5.5 | 6.0 | 6.0  |
| 18       | 2.0 | 2.5 | 3.5 | 4.0 | 5.0 | 5.0 | 6.0 | 6.5 | 6.5  |
| 21       | 2.0 | 3.0 | 3.5 | 4.5 | 5.0 | 5.5 | 6.0 | 6.5 | 7.0  |
| 24       | 2.0 | 3.0 | 3.5 | 4.5 | 5.0 | 5.5 | 6.0 | 7.0 | 7.5  |
| 27       | 2.0 | 3.0 | 4.0 | 4.5 | 5.5 | 6.0 | 6.5 | 7.0 | 7.5  |
| 30       | 2.0 | 3.0 | 4.0 | 4.5 | 5.5 | 6.0 | 6.5 | 7.5 | 8.0  |
| 40       | 2.0 | 3.0 | 4.0 | 5.0 | 5.5 | 6.5 | 7.0 | 8.0 | 8.5  |
| 50       | 2.0 | 3.0 | 4.0 | 5.0 | 6.0 | 6.5 | 7.5 | 8.0 | 9.0  |
| 60       | 2.0 | 3.0 | 4.0 | 5.0 | 6.0 | 7.0 | 7.5 | 8.5 | 9.5  |
| 80       | 2.0 | 3.0 | 4.0 | 5.0 | 6.0 | 7.0 | 8.0 | 9.0 | 9.5  |
| No limit | 2.0 | 3.0 | 4.0 | 5.0 | 6.0 | 7.0 | 8.0 | 9.0 | 10.0 |



| Width of enclosing rectangle in metres | Distance in metres from relevant boundary for unprotected percentage not exceeding |    |    |    |    |    |    |    |     |
|----------------------------------------|------------------------------------------------------------------------------------|----|----|----|----|----|----|----|-----|
|                                        | 20                                                                                 | 30 | 40 | 50 | 60 | 70 | 80 | 90 | 100 |

Enclosing rectangle 6 m high

|          |     |     |     |      |      |      |      |      |      |
|----------|-----|-----|-----|------|------|------|------|------|------|
| 3        | 1.5 | 2.0 | 2.5 | 3.0  | 3.0  | 3.5  | 3.5  | 4.0  | 4.0  |
| 6        | 2.0 | 3.0 | 3.5 | 4.0  | 4.5  | 5.0  | 5.5  | 5.5  | 6.0  |
| 9        | 2.5 | 3.5 | 4.5 | 5.0  | 5.5  | 6.0  | 6.5  | 7.0  | 7.0  |
| 12       | 3.0 | 4.0 | 5.0 | 5.5  | 6.5  | 7.0  | 7.5  | 8.0  | 8.5  |
| 15       | 3.0 | 4.5 | 5.5 | 6.0  | 7.0  | 7.5  | 8.0  | 9.0  | 9.0  |
| 18       | 3.5 | 4.5 | 5.5 | 6.5  | 7.5  | 8.0  | 9.0  | 9.5  | 10.0 |
| 21       | 3.5 | 5.0 | 6.0 | 7.0  | 8.0  | 9.0  | 9.5  | 10.0 | 10.5 |
| 24       | 3.5 | 5.0 | 6.0 | 7.0  | 8.5  | 9.5  | 10.0 | 10.5 | 11.0 |
| 27       | 3.5 | 5.0 | 6.5 | 7.5  | 8.5  | 9.5  | 20.5 | 11.0 | 12.0 |
| 30       | 3.5 | 5.0 | 6.5 | 8.0  | 9.0  | 10.0 | 11.0 | 12.0 | 12.5 |
| 40       | 3.5 | 5.5 | 7.0 | 8.5  | 10.0 | 11.0 | 12.0 | 13.0 | 14.0 |
| 50       | 3.5 | 5.5 | 7.5 | 9.0  | 10.5 | 11.5 | 13.0 | 14.0 | 15.0 |
| 60       | 3.5 | 5.5 | 7.5 | 9.5  | 11.0 | 12.0 | 13.5 | 15.0 | 16.0 |
| 80       | 3.5 | 6.0 | 7.5 | 9.5  | 11.5 | 13.0 | 14.5 | 16.0 | 17.5 |
| 100      | 3.5 | 6.0 | 8.0 | 10.0 | 12.0 | 13.5 | 15.0 | 16.5 | 18.0 |
| 120      | 3.5 | 6.0 | 8.0 | 10.0 | 12.0 | 14.0 | 15.5 | 17.0 | 19.0 |
| No limit | 3.5 | 6.0 | 8.0 | 10.0 | 12.0 | 14.0 | 16.0 | 18.0 | 19.0 |

Enclosing rectangle 9 m high

|          |     |     |      |      |      |      |      |      |      |
|----------|-----|-----|------|------|------|------|------|------|------|
| 3        | 1.5 | 2.5 | 3.0  | 3.5  | 4.0  | 4.0  | 4.5  | 5.0  | 5.0  |
| 6        | 2.5 | 3.5 | 4.5  | 5.0  | 5.5  | 6.0  | 6.5  | 7.0  | 7.0  |
| 9        | 3.5 | 4.5 | 5.5  | 6.0  | 6.5  | 7.5  | 8.0  | 8.5  | 9.0  |
| 12       | 3.5 | 5.0 | 6.0  | 7.0  | 7.5  | 8.5  | 9.0  | 9.5  | 10.5 |
| 15       | 4.0 | 5.5 | 6.5  | 7.5  | 8.5  | 9.5  | 10.0 | 11.0 | 11.5 |
| 18       | 4.5 | 6.0 | 7.0  | 8.5  | 9.5  | 10.0 | 11.0 | 12.0 | 12.5 |
| 21       | 4.5 | 6.5 | 7.5  | 9.0  | 10.0 | 11.0 | 12.0 | 13.0 | 13.5 |
| 24       | 5.0 | 6.5 | 8.0  | 9.5  | 11.0 | 12.0 | 13.0 | 13.5 | 14.5 |
| 27       | 5.0 | 7.0 | 8.5  | 10.0 | 11.5 | 12.5 | 13.5 | 14.5 | 15.0 |
| 30       | 5.0 | 7.0 | 9.0  | 10.5 | 12.0 | 13.0 | 14.0 | 15.0 | 16.0 |
| 40       | 5.5 | 7.5 | 9.5  | 11.5 | 13.0 | 14.5 | 15.5 | 17.0 | 17.5 |
| 50       | 5.5 | 8.0 | 10.0 | 12.5 | 14.0 | 15.5 | 17.0 | 18.5 | 19.5 |
| 60       | 5.5 | 8.0 | 11.0 | 13.0 | 15.0 | 16.5 | 18.0 | 19.5 | 21.0 |
| 80       | 5.5 | 8.5 | 11.5 | 13.5 | 16.0 | 17.5 | 19.5 | 21.5 | 23.0 |
| 100      | 5.5 | 8.5 | 11.5 | 14.5 | 16.5 | 18.5 | 21.0 | 22.5 | 24.5 |
| 120      | 5.5 | 8.5 | 11.5 | 14.5 | 17.0 | 19.5 | 21.5 | 23.5 | 26.0 |
| No limit | 5.5 | 8.5 | 11.5 | 15.0 | 17.5 | 20.0 | 22.5 | 24.5 | 27.0 |

| Width of enclosing rectangle in metres | Distance in metres from relevant boundary for unprotected percentage not exceeding |    |    |    |    |    |    |    |     |
|----------------------------------------|------------------------------------------------------------------------------------|----|----|----|----|----|----|----|-----|
|                                        | 20                                                                                 | 30 | 40 | 50 | 60 | 70 | 80 | 90 | 100 |

Enclosing rectangle 12 m high

|          |     |      |      |      |      |      |      |      |      |
|----------|-----|------|------|------|------|------|------|------|------|
| 3        | 2.0 | 2.5  | 3.0  | 3.5  | 4.0  | 4.5  | 5.0  | 5.5  | 5.5  |
| 6        | 3.0 | 4.0  | 5.0  | 5.5  | 6.5  | 7.0  | 7.5  | 8.0  | 8.5  |
| 9        | 3.5 | 5.0  | 6.0  | 7.0  | 7.5  | 8.5  | 9.0  | 9.5  | 10.5 |
| 12       | 4.5 | 6.0  | 7.0  | 8.0  | 9.0  | 9.5  | 11.0 | 11.5 | 12.0 |
| 15       | 5.0 | 6.5  | 8.0  | 9.0  | 10.0 | 11.0 | 12.0 | 13.0 | 13.5 |
| 18       | 5.0 | 7.0  | 8.5  | 10.0 | 11.0 | 12.0 | 13.0 | 14.0 | 14.5 |
| 21       | 5.5 | 7.5  | 9.0  | 10.5 | 12.0 | 13.0 | 14.0 | 15.0 | 16.0 |
| 24       | 6.0 | 8.0  | 9.5  | 11.5 | 12.5 | 14.0 | 15.0 | 16.0 | 16.5 |
| 27       | 6.0 | 8.0  | 10.5 | 12.0 | 13.5 | 14.5 | 16.0 | 17.0 | 17.5 |
| 30       | 6.5 | 8.5  | 10.5 | 12.5 | 14.0 | 15.0 | 16.5 | 17.5 | 18.5 |
| 40       | 6.5 | 9.5  | 12.0 | 14.0 | 15.5 | 17.5 | 18.5 | 20.0 | 21.0 |
| 50       | 7.0 | 10.0 | 13.0 | 15.0 | 17.0 | 19.0 | 20.5 | 23.0 | 23.0 |
| 60       | 7.0 | 10.5 | 13.5 | 16.0 | 18.0 | 20.0 | 21.5 | 23.5 | 25.0 |
| 80       | 7.0 | 11.0 | 14.5 | 17.0 | 19.5 | 21.5 | 23.5 | 26.0 | 27.5 |
| 100      | 7.5 | 11.5 | 15.0 | 18.0 | 21.0 | 23.0 | 25.5 | 28.0 | 30.0 |
| 120      | 7.5 | 11.5 | 15.0 | 18.5 | 22.0 | 24.0 | 27.0 | 29.5 | 31.5 |
| No limit | 7.5 | 12.0 | 15.5 | 19.0 | 22.5 | 25.0 | 28.0 | 30.5 | 34.0 |

Enclosing rectangle 15 m high

|          |     |      |      |      |      |      |      |      |      |
|----------|-----|------|------|------|------|------|------|------|------|
| 3        | 2.0 | 2.5  | 3.5  | 4.0  | 4.5  | 5.0  | 5.5  | 6.0  | 6.0  |
| 6        | 3.0 | 4.5  | 5.5  | 6.0  | 7.0  | 7.5  | 8.0  | 9.0  | 9.0  |
| 9        | 4.0 | 5.5  | 6.5  | 7.5  | 8.5  | 9.5  | 10.0 | 11.0 | 11.5 |
| 12       | 5.0 | 6.5  | 8.0  | 9.0  | 10.0 | 11.0 | 12.0 | 13.0 | 13.5 |
| 15       | 5.5 | 7.0  | 9.0  | 10.0 | 11.5 | 12.5 | 13.5 | 14.5 | 15.0 |
| 18       | 6.0 | 8.0  | 9.5  | 11.0 | 12.5 | 13.5 | 14.5 | 15.5 | 16.5 |
| 21       | 6.5 | 8.5  | 10.5 | 12.0 | 13.5 | 14.5 | 16.0 | 16.5 | 17.5 |
| 24       | 6.5 | 9.0  | 11.0 | 13.0 | 14.5 | 15.5 | 17.0 | 18.0 | 19.0 |
| 27       | 7.0 | 9.5  | 11.5 | 13.5 | 15.0 | 16.5 | 18.0 | 19.0 | 20.0 |
| 30       | 7.5 | 10.0 | 12.0 | 14.0 | 16.0 | 17.0 | 18.5 | 20.0 | 21.0 |
| 40       | 8.0 | 11.0 | 13.5 | 16.0 | 18.0 | 19.5 | 21.0 | 22.5 | 23.5 |
| 50       | 8.5 | 12.0 | 15.0 | 17.5 | 19.5 | 21.5 | 23.0 | 25.0 | 26.0 |
| 60       | 8.5 | 12.5 | 15.5 | 18.0 | 21.0 | 23.5 | 25.0 | 27.0 | 28.0 |
| 80       | 9.0 | 13.5 | 17.0 | 20.0 | 23.0 | 25.5 | 28.0 | 30.0 | 31.5 |
| 100      | 9.0 | 14.0 | 18.0 | 21.5 | 24.5 | 27.5 | 30.0 | 32.5 | 34.5 |
| 120      | 9.0 | 14.0 | 18.5 | 22.5 | 25.5 | 28.5 | 31.5 | 34.5 | 37.0 |
| No limit | 9.0 | 14.5 | 19.0 | 23.0 | 27.0 | 30.0 | 34.0 | 36.0 | 39.0 |

| <i>Width of enclosing rectangle in metres</i> | <i>Distance in metres from relevant boundary for unprotected percentage not exceeding</i> |    |    |    |    |    |    |    |     |
|-----------------------------------------------|-------------------------------------------------------------------------------------------|----|----|----|----|----|----|----|-----|
|                                               | 20                                                                                        | 30 | 40 | 50 | 60 | 70 | 80 | 90 | 100 |

Enclosing rectangle 18 m high

|          |      |      |      |      |      |      |      |      |      |
|----------|------|------|------|------|------|------|------|------|------|
| 3        | 2.0  | 2.5  | 3.5  | 4.0  | 5.0  | 5.0  | 6.0  | 6.5  | 6.5  |
| 6        | 3.5  | 4.5  | 5.5  | 6.5  | 7.5  | 8.0  | 9.0  | 9.5  | 10.0 |
| 9        | 4.5  | 6.0  | 7.0  | 8.5  | 9.5  | 10.0 | 11.0 | 12.0 | 12.5 |
| 12       | 5.0  | 7.0  | 8.5  | 10.0 | 11.0 | 12.0 | 13.0 | 14.0 | 14.5 |
| 15       | 6.0  | 8.0  | 9.5  | 11.0 | 12.5 | 13.5 | 14.5 | 15.5 | 16.5 |
| 18       | 6.5  | 8.5  | 11.0 | 12.0 | 13.5 | 14.5 | 16.0 | 17.0 | 18.0 |
| 21       | 7.0  | 9.5  | 11.5 | 13.0 | 14.5 | 16.0 | 17.0 | 18.0 | 19.5 |
| 24       | 7.5  | 10.0 | 12.0 | 14.0 | 15.5 | 16.5 | 18.5 | 19.5 | 20.5 |
| 27       | 8.0  | 10.5 | 12.5 | 14.5 | 16.5 | 17.5 | 19.5 | 20.5 | 21.5 |
| 30       | 8.0  | 11.0 | 13.5 | 15.5 | 17.0 | 18.5 | 20.5 | 21.5 | 22.5 |
| 40       | 9.0  | 12.0 | 15.0 | 17.5 | 19.5 | 21.5 | 23.5 | 25.0 | 26.0 |
| 50       | 9.5  | 13.0 | 16.5 | 19.0 | 21.5 | 23.5 | 26.0 | 27.5 | 29.0 |
| 60       | 10.0 | 14.0 | 17.5 | 20.5 | 23.0 | 26.0 | 27.5 | 29.5 | 31.0 |
| 80       | 10.0 | 15.0 | 19.0 | 22.5 | 26.0 | 28.5 | 31.0 | 33.5 | 35.0 |
| 100      | 10.0 | 16.0 | 20.5 | 24.0 | 28.0 | 31.0 | 33.5 | 36.0 | 38.5 |
| 120      | 10.0 | 16.5 | 21.0 | 25.5 | 29.5 | 32.5 | 35.5 | 39.0 | 41.5 |
| No limit | 10.0 | 17.0 | 22.0 | 26.5 | 30.5 | 34.0 | 37.0 | 41.0 | 43.5 |

Enclosing rectangle 21 m high

|          |      |      |      |      |      |      |      |      |      |
|----------|------|------|------|------|------|------|------|------|------|
| 3        | 2.0  | 3.0  | 3.5  | 4.5  | 5.0  | 5.5  | 6.0  | 6.5  | 7.0  |
| 6        | 3.5  | 5.0  | 6.0  | 7.0  | 8.0  | 9.0  | 9.5  | 10.0 | 10.5 |
| 9        | 4.5  | 6.5  | 7.5  | 9.0  | 10.0 | 11.0 | 12.0 | 13.0 | 13.5 |
| 12       | 5.5  | 7.5  | 9.0  | 10.5 | 12.0 | 13.0 | 14.0 | 15.0 | 16.0 |
| 15       | 6.5  | 8.5  | 10.5 | 12.0 | 13.5 | 14.5 | 16.0 | 16.5 | 17.5 |
| 18       | 7.0  | 9.5  | 11.5 | 13.0 | 14.5 | 16.0 | 17.0 | 18.0 | 19.5 |
| 21       | 7.5  | 10.0 | 12.5 | 14.0 | 15.5 | 17.0 | 18.5 | 20.0 | 21.0 |
| 24       | 8.0  | 10.5 | 13.0 | 15.0 | 16.5 | 18.0 | 20.0 | 21.0 | 22.0 |
| 27       | 8.5  | 11.5 | 14.0 | 16.0 | 18.0 | 19.0 | 21.0 | 22.5 | 23.5 |
| 30       | 9.0  | 12.0 | 14.5 | 16.5 | 18.5 | 20.5 | 22.0 | 23.5 | 25.0 |
| 40       | 10.0 | 13.5 | 16.5 | 19.0 | 21.5 | 23.0 | 25.5 | 27.0 | 28.5 |
| 50       | 11.0 | 14.5 | 18.0 | 21.0 | 23.5 | 25.5 | 28.0 | 30.0 | 31.5 |
| 60       | 11.5 | 15.5 | 19.5 | 22.5 | 25.5 | 28.0 | 30.5 | 32.5 | 33.5 |
| 80       | 12.0 | 17.0 | 21.0 | 25.0 | 28.5 | 31.5 | 34.0 | 36.5 | 38.5 |
| 100      | 12.0 | 18.0 | 22.5 | 27.0 | 31.0 | 34.5 | 37.0 | 40.0 | 42.0 |
| 120      | 12.0 | 18.5 | 23.5 | 28.5 | 32.5 | 36.5 | 39.5 | 43.0 | 45.5 |
| No limit | 12.0 | 19.0 | 25.0 | 29.5 | 34.5 | 38.0 | 41.5 | 45.5 | 48.0 |

| Width of enclosing rectangle in metres | Distance in metres from relevant boundary for unprotected percentage not exceeding |    |    |    |    |    |    |    |     |
|----------------------------------------|------------------------------------------------------------------------------------|----|----|----|----|----|----|----|-----|
|                                        | 20                                                                                 | 30 | 40 | 50 | 60 | 70 | 80 | 90 | 100 |

Enclosing rectangle 24 m high

|          |      |      |      |      |      |      |      |      |      |
|----------|------|------|------|------|------|------|------|------|------|
| 3        | 2.0  | 3.0  | 3.5  | 4.5  | 5.0  | 5.5  | 6.0  | 7.0  | 7.5  |
| 6        | 3.5  | 5.0  | 6.0  | 7.0  | 8.5  | 9.5  | 10.0 | 10.5 | 11.0 |
| 9        | 5.0  | 6.5  | 8.0  | 9.5  | 11.0 | 12.0 | 13.0 | 13.5 | 14.5 |
| 12       | 6.0  | 8.0  | 9.5  | 11.5 | 12.5 | 14.0 | 15.0 | 16.0 | 16.5 |
| 15       | 6.5  | 9.0  | 11.0 | 13.0 | 14.5 | 15.5 | 17.0 | 18.0 | 19.0 |
| 18       | 7.5  | 10.0 | 12.0 | 14.0 | 15.5 | 16.5 | 18.5 | 19.5 | 20.5 |
| 21       | 8.0  | 10.5 | 13.0 | 15.0 | 16.5 | 18.0 | 20.0 | 21.0 | 22.0 |
| 24       | 8.5  | 11.5 | 14.0 | 16.0 | 18.0 | 19.5 | 21.0 | 22.5 | 24.0 |
| 27       | 9.0  | 12.5 | 15.0 | 17.0 | 19.0 | 20.5 | 22.5 | 24.0 | 25.5 |
| 30       | 9.5  | 13.0 | 15.5 | 18.0 | 20.0 | 21.5 | 23.5 | 25.0 | 26.5 |
| 40       | 11.0 | 14.5 | 18.0 | 20.5 | 23.0 | 25.0 | 27.5 | 29.0 | 30.5 |
| 50       | 12.0 | 16.0 | 19.5 | 22.5 | 25.5 | 27.5 | 30.0 | 32.0 | 33.5 |
| 60       | 12.5 | 17.0 | 21.0 | 24.5 | 27.5 | 30.0 | 32.5 | 35.0 | 36.5 |
| 80       | 13.5 | 18.5 | 23.5 | 27.5 | 31.0 | 34.5 | 37.0 | 39.5 | 41.5 |
| 100      | 13.5 | 20.0 | 25.0 | 29.5 | 33.5 | 37.0 | 40.0 | 43.0 | 45.5 |
| 120      | 13.5 | 20.5 | 26.5 | 31.0 | 36.0 | 39.5 | 43.0 | 46.5 | 49.0 |
| No limit | 13.5 | 21.0 | 27.5 | 32.5 | 37.5 | 42.0 | 45.5 | 49.5 | 52.0 |

Enclosing rectangle 27 m high

|          |      |      |      |      |      |      |      |      |      |
|----------|------|------|------|------|------|------|------|------|------|
| 3        | 2.0  | 3.0  | 4.0  | 4.5  | 5.5  | 6.0  | 6.5  | 7.0  | 7.5  |
| 6        | 3.5  | 5.0  | 6.5  | 7.5  | 8.5  | 9.5  | 10.5 | 11.0 | 12.0 |
| 9        | 5.0  | 7.0  | 8.5  | 10.0 | 11.5 | 12.5 | 13.5 | 14.5 | 15.0 |
| 12       | 6.0  | 8.0  | 10.5 | 12.0 | 13.5 | 14.5 | 16.0 | 17.0 | 17.5 |
| 15       | 7.0  | 9.5  | 11.5 | 13.5 | 15.0 | 16.5 | 18.0 | 19.0 | 20.0 |
| 18       | 8.0  | 10.5 | 12.5 | 14.5 | 16.5 | 17.5 | 19.5 | 20.5 | 21.5 |
| 21       | 8.5  | 11.5 | 14.0 | 16.0 | 18.0 | 19.0 | 21.0 | 22.5 | 23.5 |
| 24       | 9.0  | 12.5 | 15.0 | 17.0 | 19.0 | 20.5 | 22.5 | 24.0 | 25.5 |
| 27       | 10.0 | 13.0 | 16.0 | 18.0 | 20.0 | 22.0 | 24.0 | 25.5 | 27.0 |
| 30       | 10.0 | 13.5 | 17.0 | 19.0 | 21.0 | 23.0 | 25.0 | 26.5 | 28.0 |
| 40       | 11.5 | 15.5 | 19.0 | 22.0 | 24.5 | 26.5 | 29.0 | 30.5 | 32.5 |
| 50       | 12.5 | 17.0 | 21.0 | 24.0 | 27.0 | 29.5 | 32.0 | 34.5 | 36.0 |
| 60       | 13.5 | 18.5 | 22.5 | 26.5 | 29.5 | 32.0 | 35.0 | 37.0 | 39.0 |
| 80       | 14.5 | 20.5 | 25.0 | 29.5 | 33.0 | 36.5 | 39.5 | 42.0 | 44.0 |
| 100      | 15.5 | 21.5 | 27.0 | 32.0 | 36.5 | 40.5 | 43.0 | 46.5 | 48.5 |
| 120      | 15.5 | 22.5 | 28.5 | 34.0 | 39.0 | 43.0 | 46.5 | 50.5 | 53.0 |
| No limit | 15.5 | 23.5 | 29.5 | 35.0 | 40.5 | 44.5 | 48.5 | 52.0 | 55.5 |

### PART III

#### RULES FOR CALCULATION BY REFERENCE TO AGGREGATE NOTIONAL AREA

1. The conditions of this Part shall be satisfied if a building is so constructed that the aggregate notional area of the unprotected areas in the side of a building or compartment does not exceed—

(a) 210 square metres (if the building or compartment is of Purpose Group I, II, III, IV or VII); or

(b) 90 square metres (if the building or compartment is of Purpose Group V, VI or VIII),

such calculation being made by reference to any one of a series of vertical data, measured at intervals of not more than 3 metres from one another along the relevant boundary.

2. For the purpose of this Part—

“aggregate notional area” means the aggregate of the areas of any unprotected areas in the side of a building or compartment, each such area being multiplied by the factor specified in the Table to this Part according to the distance of such unprotected areas from the vertical datum;

“vertical datum” means a vertical line of unlimited height at any point on the relevant boundary;

“the datum line” means the line joining a vertical datum to the nearest point of the side of the building or compartment.

3. For the purpose of this Part, no account shall be taken of any unprotected area in the side of a building or compartment which is—

(a) screened from the vertical datum by any part of an external wall which is not an unprotected area;

(b) outside a horizontal area having its centre at a point through which the vertical datum passes and having a radius measuring 50 metres and extending 90° on either side of the datum line; or

- (c) facing away from the vertical datum or making an angle not exceeding 10° with a line drawn from it to the vertical datum.

TABLE OF FACTORS

| <i>Distance of unprotected area from vertical datum<br/>in metres</i> |                  | <i>Factor</i> |
|-----------------------------------------------------------------------|------------------|---------------|
| <i>Not less than</i>                                                  | <i>Less than</i> |               |
| 1                                                                     | 1.2              | 80            |
| 1.2                                                                   | 1.8              | 40            |
| 1.8                                                                   | 2.7              | 20            |
| 2.7                                                                   | 4.3              | 10            |
| 4.3                                                                   | 6.0              | 4             |
| 6.0                                                                   | 8.5              | 2             |
| 8.5                                                                   | 12.0             | 1             |
| 12.0                                                                  | 18.5             | 0.5           |
| 18.5                                                                  | 27.5             | 0.25          |
| 27.5                                                                  | 50               | 0.1           |
| 50                                                                    | No limit         | 0             |

## PART IV

RULES FOR CALCULATION IN RESPECT OF CERTAIN  
BUILDINGS OF PURPOSE GROUP I OR III

1. The provisions of this Part apply only to any building of Purpose Group I or III, which has not more than three storeys and of which no side (measured on an elevation) exceeds 24 metres in length.
2. The conditions of this Part shall be satisfied if the distance between any part of a side of a building and the relevant boundary is not less than the minimum distance specified in the Table to this Part according to the length of such side and the total area of any unprotected areas to be taken into account.

TABLE TO PART IV  
PERMITTED UNPROTECTED AREAS IN CERTAIN  
RESIDENTIAL BUILDINGS

| <i>Minimum distance<br/>(in metres) between<br/>side of building</i> | <i>Length of side<br/>(in metres)<br/>not exceeding</i> | <i>Total area of unprotected areas<br/>(in square metres)<br/>not exceeding</i> |
|----------------------------------------------------------------------|---------------------------------------------------------|---------------------------------------------------------------------------------|
| (1)                                                                  | (2)                                                     | (3)                                                                             |
| 1                                                                    | 24                                                      | 5.6                                                                             |
| 2.5                                                                  | 24                                                      | 15                                                                              |
| 5.0                                                                  | 12                                                      | up to the whole area of the wall                                                |
| 6.0                                                                  | 24                                                      | up to the whole area of the wall                                                |

## SCHEDULE G

## A. MAXIMUM TRAVEL DISTANCES

(Bylaws 145(4), 146(2) and (3), 148(1) and 157(b))

| Purpose Group |                    | Limit when alternative exits are available |                       |                     |
|---------------|--------------------|--------------------------------------------|-----------------------|---------------------|
|               |                    | (1)                                        | (2)                   | (3)                 |
|               |                    | *Dead-end (metre)                          | Unsprinklered (metre) | Sprinklered (metre) |
| I.            | Small Residential  | NR                                         | NR                    | NR                  |
| II            | Institutional      |                                            |                       |                     |
|               | Hospitals, Nursing |                                            |                       |                     |
|               | Homes, etc.        | 9                                          | 30                    | 45                  |
|               | School             | 6                                          | 45                    | 60                  |
|               | Open Plan          | NR                                         | 30                    | 45                  |
|               | Flexible Plan      | NR                                         | 45                    | 60                  |
| III.          | Other Residential  |                                            |                       |                     |
|               | Hotels             | 10                                         | 30                    | 45                  |
|               | Flats              | 10                                         | 30                    | 45                  |
|               | Dormitories        | 0                                          | 30                    | 45                  |
| IV.           | Office             | 15                                         | 45                    | 60                  |
| V.            | Shops              | 15                                         | 30                    | 45                  |
| VI.           | Factory            |                                            |                       |                     |
|               | General and        |                                            |                       |                     |
|               | Special Purpose    | 15                                         | 30                    | 45                  |
|               | High Hazard        | 0                                          | 22                    | 22.5                |
|               | Open Structures    | NR                                         | NR                    | NR                  |
| VII.          | Places of Assembly | NR                                         | 45                    | 61                  |
| VIII.         | Storage & General  |                                            |                       |                     |
|               | Low and Ordinary   |                                            |                       |                     |
|               | Hazard             | NR                                         | NR                    | NR                  |
|               | High Hazard        | NR                                         | 22.5                  | 30                  |
|               | Parking Garages    | 15                                         | 30 +                  | 45 x                |
|               | Aircraft Hangars   |                                            |                       |                     |
|               | (Ground Floor)     | NR                                         | 30 +                  | 45 +                |
|               | Aircraft Hangars   |                                            |                       |                     |
|               | (Mezzanine Floor)  | NR                                         | 22.5                  | 22.5                |

NR No requirement or not applicable.

x Limits distance of travel on floors below in the street in sprinklered garage to 30 metres.

\* 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 the 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 buildings 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 minimize the possibility that employees will be overtaken by the spread of fire or smoke within 1.8 metres of the floor level before they have time to reach exits provided however that in no case may the distance of travel to reach the nearest exit exceed 120 metres.

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

## B. CALCULATION OF OCCUPANT LOAD AND CAPACITY OF EXITS

(Bylaws 148(2), 155(2), 157(c) and 163)

| Purpose Group |                                                                           | Occupant<br>load<br>square<br>metre per | CAPACITY EXITS<br>No. of persons per unit — Exit Width |                         |                      |                      |                |        |
|---------------|---------------------------------------------------------------------------|-----------------------------------------|--------------------------------------------------------|-------------------------|----------------------|----------------------|----------------|--------|
|               |                                                                           |                                         | Doors<br>outside                                       | Hori-<br>zontal<br>Exit | Ramp<br>Main<br>Exit | Ramp<br>Sec.<br>Exit | Escal-<br>ator | Stairs |
| I.            | Small Residential                                                         | NR                                      | NR                                                     | NR                      | NR                   | NR                   | NR             | NR     |
| II.           | Institutional                                                             |                                         | 100                                                    | 100                     | 100                  | 60                   | —              | 60     |
|               | Classroom Area                                                            | 2 net                                   |                                                        |                         |                      |                      |                |        |
|               | Workshop and Vocational areas                                             | 4.5 net                                 |                                                        |                         |                      |                      |                |        |
|               | Day Nurseries with sleeping facilities                                    | 3.5 net                                 |                                                        |                         |                      |                      |                |        |
|               | Hospital                                                                  | —                                       | 30                                                     | 30                      | 30                   | 30                   | —              | 22     |
|               | Sleeping Departments                                                      | 12 Gross                                |                                                        |                         |                      |                      |                |        |
|               | In-patient Departments                                                    | 24 Gross                                |                                                        |                         |                      |                      |                |        |
| III.          | Other Residential                                                         | 20 Gross                                | 100                                                    | 60                      | 60                   | 60                   | 45             | 45     |
|               | Flats                                                                     | 24 Gross                                |                                                        |                         |                      |                      |                |        |
|               | General public areas in Hotels (Bedrooms in hotels at 2 persons per room) | 24 Gross                                |                                                        |                         |                      |                      |                |        |

| <i>Purpose Group</i> |                                                          | <i>Occupant<br/>load<br/>square<br/>metre per</i> | <i>CAPACITY EXITS<br/>No. of persons per unit — Exit Width</i> |                                  |                               |                               |                        |               |
|----------------------|----------------------------------------------------------|---------------------------------------------------|----------------------------------------------------------------|----------------------------------|-------------------------------|-------------------------------|------------------------|---------------|
|                      |                                                          |                                                   | <i>Doors<br/>outside</i>                                       | <i>Hori-<br/>zontal<br/>Exit</i> | <i>Ramp<br/>Main<br/>Exit</i> | <i>Ramp<br/>Sec.<br/>Exit</i> | <i>Escal-<br/>ator</i> | <i>Stairs</i> |
| IV.                  | Office                                                   | 10 Gross<br>(4)                                   | 100                                                            | 100                              | 100                           | 60                            | 60                     | 60            |
| V.                   | Shops                                                    | —                                                 | 100                                                            | 100                              | 100                           | 60                            | 60                     | 60            |
|                      | Street floor<br>and sale base-<br>ment                   | 3 Gross<br>(4)                                    |                                                                |                                  |                               |                               |                        |               |
|                      | Other floors                                             | 6 Gross<br>(4)                                    |                                                                |                                  |                               |                               |                        |               |
|                      | Storage and<br>shipping                                  | 10 Gross                                          |                                                                |                                  |                               |                               |                        |               |
| VI.                  | Factory                                                  | 10 Gross                                          | 100                                                            | 100                              | 100                           | 60                            | 60                     | 60            |
| VII.                 | Places of<br>Assembly                                    | 1.5 net                                           | 100                                                            | 100                              | 100                           | 75                            | 75                     | 75            |
|                      | Areas of<br>concentrated<br>use without<br>fixed seating | 0.7 net                                           |                                                                |                                  |                               |                               |                        |               |
|                      | Standing space                                           | 0.3 net                                           |                                                                |                                  |                               |                               |                        |               |

NR No requirements or not applicable.

Exits are measured in units of 550 millimetres width.

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

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 office buildings, assembly buildings for travel in horizontal direction.

For travel in an inclined direction — 22 persons per unit of exit width in hospital 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.

# *SCHEDULE H*

## CLASSIFICATION OF RESTRICTION OF SPREAD OF FLAME OVER SURFACES OF WALLS AND CEILINGS

(Bylaws 194 and 196(1))

| <i>Purpose Group</i> |                                                          |     |     |     | <i>Exits</i> | <i>Access to Exits</i> | <i>Other Spaces</i>                                       |
|----------------------|----------------------------------------------------------|-----|-----|-----|--------------|------------------------|-----------------------------------------------------------|
| I                    | Small Residential                                        | ... |     |     | NR           | NR                     | NR                                                        |
| II                   | Institutional                                            | ... | ... |     | 0            | 0                      | 3                                                         |
|                      | Open plan or flexible plan                               |     |     |     | 0            | 0                      | 2                                                         |
|                      | Hospitals, nursing homes or residential — custodial care |     |     |     | 0            | 0                      | 1                                                         |
|                      |                                                          |     |     |     |              |                        | 2 in individual room with capacity not more than 4 person |
| III                  | Other Residential                                        |     |     |     |              |                        |                                                           |
|                      | Flats                                                    | ... | ... | ... | 1            | 1                      | 3                                                         |
|                      | Dormitories                                              | ... | ... | ... | 1            | 1                      | 3                                                         |
|                      | 1 and 2 family houses                                    |     |     |     |              |                        |                                                           |
|                      | lodging or boarding houses                               |     |     |     | 0            | 0                      | 3                                                         |
|                      | Hotels                                                   | ... | ... | ... | 0            | 0                      | 3                                                         |
| IV                   | Office                                                   | ... | ... | ... | 1            | 1                      | 3                                                         |
| V                    | Shop — Class A                                           | ... | ... | ... | 0            | 0                      | Ceilings 2<br>Walls 3                                     |
|                      | Shop — Class B                                           | ... | ... | ... | 0            | 0                      | Ceilings 2<br>Walls 3                                     |
|                      | Shop — Class C                                           | ... | ... | ... | 0            | 0                      | 3                                                         |
| VI                   | Factory                                                  | ... | ... | ... | 3            | 3                      | 3                                                         |

NR No requirements or not applicable.

Class A Places of Assembly — 1000 persons or more.

Class B Places of Assembly — 300 to 1000 persons.

Class C Places of Assembly — 100 to 300 persons.

## Class A Shops—

Stores having aggregate gross area of 3000 square metres or more, or utilizing more than 3 floor levels for sale purposes.

## Class B Shops—

Stores of less than 3000 square metres aggregate gross area, but over 300 square metres or utilizing any floors above or below ground floor level for sales purposes, except that if more than 3 floors are utilized, store shall be Class A.

## Class C Shops—

Stores of 300 square metres or less gross area, used for sales purposes on ground floor level only.

## Class O—

Asbestos— cement sheets.

Asbestos insulation board.

Asbestos insulation board, or plaster, or concrete, or metal sheets finished with oil-based or polymer paints.

Plasterboard

Fibre insulation board

Hardwood

Compressed straw slabs

}  
}  
}  
}

Finished with not less than 3.2 mm of non-combustible surface.

## Class 1—

Wood-wool slabs.

Fibre insulation board with asbestos felt surface on the exposed face.

Compressed straw slabs, with asbestos felt surface on the exposed face.

Fibre insulation board, three coats non-washable distemper.

Fibre insulation board, one coat non-washable distemper on a sized board.

Timber or plywood or fibre insulation board or hardboard painted with a fire retardant paint.

## Class 2 or 3—

Fibre insulation board finished with one coat of washable distemper or one coat of flat oil-paint.

Timber or plywood of density greater than 0.4 g/cm<sup>3</sup>.

Hardwood or softwood finished with oil-based or polymer paints.

Plywood finished with oil-based or polymer paints.

Hardboard.

Hardboard finished with oil-based or polymer paints.

Hardboard with wallpaper finished with oil-based or polymer paints.

Class 4—

Untreated fibre insulated Board.

## NOTIONAL DESIGNATIONS OF ROOF CONSTRUCTIONS

*(Bylaws 197(1)(b) and 198(a))*

### PART I

#### PITCHED ROOFS COVERED WITH SLATES OR TILES

| <i>Covering material</i> |                                                                                                                               | <i>Supporting structure</i>                                                                                                                  | <i>Designation</i> |
|--------------------------|-------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------|--------------------|
| 1.                       | Natural slates                                                                                                                | Timber rafters or without underfelt on sarking or boarding, woodwool slabs, compressed straw, slabs, wood chipboard or insulating fire-board | AA                 |
| 2.                       | Asbestos cement slates                                                                                                        |                                                                                                                                              |                    |
| 3.                       | Clay tiles                                                                                                                    |                                                                                                                                              |                    |
| 4.                       | Concrete tiles                                                                                                                |                                                                                                                                              |                    |
| 5.                       | Bitumen felt strip slates, asbestos or fibre based                                                                            | Timber rafters and boarding                                                                                                                  | CC                 |
| 6.                       | Bitumen felt strip slates, asbestos based, mineral surfaced with an underlayer of self-finished asbestos felt minimum 13.6 kg | Timber rafters and boarding                                                                                                                  | BB                 |

## PART II

## PITCHED ROOFS COVERED WITH PREFORMED SELF-SUPPORTING SHEETS

| <i>Covering material</i>     |                                         |    |    | <i>Supporting structure</i>                                                |                                                                                                              |    |    | <i>Designation</i> |
|------------------------------|-----------------------------------------|----|----|----------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------|----|----|--------------------|
| <i>Corrugated sheets of—</i> |                                         |    |    | <i>Main structure of timber, steel or concrete and covering in either—</i> |                                                                                                              |    |    |                    |
|                              |                                         |    |    | (a)                                                                        | single-skin construction without underlay or with underlay of:                                               |    |    |                    |
|                              |                                         |    |    | (i)                                                                        | asbestos insulating board, or                                                                                | .. | .. |                    |
| (a)                          | galvanised steel, or                    | .. | .. | (ii)                                                                       | plasterboard, or                                                                                             | .. | .. |                    |
| (b)                          | aluminium, or                           | .. | .. | (iii)                                                                      | fibreboard treated to achieve Class 1 in spread of flame test*, or                                           |    |    | AA                 |
| (c)                          | composite steel and asbestos sheets, or |    |    | (iv)                                                                       | compressed straw slab, or                                                                                    | .. | .. |                    |
| (d)                          | asbestos-cement                         | .. | .. | (v)                                                                        | Woodwool slab, or                                                                                            | .. | .. |                    |
|                              |                                         |    |    | (b)                                                                        | double-skin construction without interlayer or with interlayer of resin-bonded or bitumen-bonded glass fibre |    |    | AA                 |

## PART III

## PITCHED OR FLAT ROOFS COVERED WITH FULLY SUPPORTED MATERIALS

|                                  |     |     |     | <i>Supporting structure</i>                            |                                      |                                                 |                                                                                                                                                      |
|----------------------------------|-----|-----|-----|--------------------------------------------------------|--------------------------------------|-------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------|
|                                  |     |     |     | Timber joists and boarding not less than 22.4 mm thick | Steel or timber joists with deck of— |                                                 | Slab of concrete or clay pot, insitu or precast concrete : or non-combustible deck or steel, aluminium or asbestos-cement with or without insulation |
|                                  |     |     |     | Tongued Plain and edged grooved                        | (a)                                  | woodwool slabs, or                              |                                                                                                                                                      |
|                                  |     |     |     |                                                        | (b)                                  | compressed straw slabs 50.11 mm thick, or       |                                                                                                                                                      |
|                                  |     |     |     |                                                        | (c)                                  | wood chipboard not less than 22.4 mm or         |                                                                                                                                                      |
|                                  |     |     |     |                                                        | (d)                                  | insulating fibreboard not less than 25 mm thick |                                                                                                                                                      |
| Aluminium, copper or zinc sheets | ... | ... | ... | AA                                                     | AA                                   | AA                                              | AA                                                                                                                                                   |
| Lead sheet                       | ... | ... | ... | AA                                                     | BA                                   | AA                                              | AA                                                                                                                                                   |
| Mastic asphalt                   | ... | ... | ... | AA                                                     | AA                                   | AA                                              | AA                                                                                                                                                   |

# A. FLAT ROOFS

## PART IV

### ROOFS COVERED WITH BITUMEN FELT

#### DETAILS OF FELT: TYPE, WEIGHT BASE AND FINISH

|                                                                                                                 | Under layer or layers                                                           | Upper layer                                                                                        | Timber joists with 25 mm from J.P.E. or T. and G. boarding (lower layer nailed) | Combustible Deck                                              |                                   | Steel or timber beams      |                             | Non-combustible Deck                          |                                               |
|-----------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------|---------------------------------------------------------------|-----------------------------------|----------------------------|-----------------------------|-----------------------------------------------|-----------------------------------------------|
|                                                                                                                 |                                                                                 |                                                                                                    |                                                                                 | Stressed skin plywood cavity deck. Thickness of plywood 19 mm | Supporting compressed straw slabs | Supporting wood wood slabs | Asbestos cement cavity deck | Steel or aluminium deck single skin or cavity | Concrete or claypate slat cut in situ precast |
| Flat roof with two or three layer felt, 13 kg/10 sq. metres bitumen bonding compound and between layers of felt | 1. Type IC, self-finished or lightly sanded bitumen felt, minimum 13 kg         | Type IC, self-finished or Type IC, self-finished or (a) lightly sanded bitumen felt, minimum 13 kg | AA                                                                              | AA                                                            | AA                                | AA                         | AA                          | AA                                            | AA                                            |
|                                                                                                                 |                                                                                 |                                                                                                    |                                                                                 |                                                               |                                   |                            |                             |                                               |                                               |
|                                                                                                                 |                                                                                 |                                                                                                    |                                                                                 |                                                               |                                   |                            |                             |                                               |                                               |
|                                                                                                                 |                                                                                 |                                                                                                    |                                                                                 |                                                               |                                   |                            |                             |                                               |                                               |
| Flat roof with two or three layer felt, 13 kg/10 sq. metres bitumen bonding compound and between layers of felt | 2. Type IC, self-finished or lightly sanded bitumen felt, minimum 13 kg         | Type 2 B, self-finished or (a) lightly sanded bitumen asbestos felt (b) minimum 13 kg              | AA                                                                              | AA                                                            | AA                                | AA                         | AA                          | AA                                            | AA                                            |
|                                                                                                                 |                                                                                 |                                                                                                    |                                                                                 |                                                               |                                   |                            |                             |                                               |                                               |
|                                                                                                                 |                                                                                 |                                                                                                    |                                                                                 |                                                               |                                   |                            |                             |                                               |                                               |
|                                                                                                                 |                                                                                 |                                                                                                    |                                                                                 |                                                               |                                   |                            |                             |                                               |                                               |
| Flat roof with two or three layer felt, 13 kg/10 sq. metres bitumen bonding compound and between layers of felt | 3. Type 2B, self-finished or lightly sanded bitumen asbestos felt minimum 13 kg | Type 2B, self-finished or (a) lightly sanded bitumen asbestos felt (b) minimum 13 kg               | AA                                                                              | AA                                                            | AA                                | AA                         | AA                          | AA                                            | AA                                            |
|                                                                                                                 |                                                                                 |                                                                                                    |                                                                                 |                                                               |                                   |                            |                             |                                               |                                               |
|                                                                                                                 |                                                                                 |                                                                                                    |                                                                                 |                                                               |                                   |                            |                             |                                               |                                               |
|                                                                                                                 |                                                                                 |                                                                                                    |                                                                                 |                                                               |                                   |                            |                             |                                               |                                               |
| Flat roof with two or three layer felt, 13 kg/10 sq. metres bitumen bonding compound and between layers of felt | 4. Type 5A, bitumen glass fibre felt, minimum 13 kg                             | Type 5A, bitumen (a) glass fibre felt (b) minimum 13 kg                                            | AA                                                                              | AA                                                            | AA                                | AA                         | AA                          | AA                                            | AA                                            |
|                                                                                                                 |                                                                                 |                                                                                                    |                                                                                 |                                                               |                                   |                            |                             |                                               |                                               |
|                                                                                                                 |                                                                                 |                                                                                                    |                                                                                 |                                                               |                                   |                            |                             |                                               |                                               |
|                                                                                                                 |                                                                                 |                                                                                                    |                                                                                 |                                                               |                                   |                            |                             |                                               |                                               |

Overlaid insulating fibreboard in accordance with BS 1142 1961 (Section One 2b)

#### NOTES:

Any reference in this part of this table to a type of layer of felt is a reference to that type as listed in BS 747:1961--  
 (a) with bitumen-bedded mineral chippings 9.54 mm by 15.9 mm spread evenly shoulder to shoulder 49.18--57.37 mm<sup>2</sup> per tonne  
 (b) with bitumen-bedded tiles of asbestos cement or tiles of other non-combustible material.

## DETAILS OF FELT TYPE, WEIGHT BASE AND FINISH

## B PITCHED ROOFS

|                                                                                                                        | Under layer<br>or layers                                                                                                                                                                                                                                                                                                                                                   | Upper layer                                                                                                                                                                                                                                        | Timber<br>joists with 25 mm<br>(nom.) P.E. or<br>T. and G.<br>boarding (lower<br>layer nailed) | Combustible Deck                                                         |                                         | Steel or timber beams                          |                                                             | Non-combustible Deck |    | Concrete or<br>claypots slab<br>cast in situ<br>or precast |
|------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------|-----------------------------------------|------------------------------------------------|-------------------------------------------------------------|----------------------|----|------------------------------------------------------------|
|                                                                                                                        |                                                                                                                                                                                                                                                                                                                                                                            |                                                                                                                                                                                                                                                    |                                                                                                | Stressed skin<br>plywood cavity<br>deck: Thickness<br>of plywood<br>6 mm | Supporting<br>compressed<br>straw slabs | Supporting<br>compressed<br>wood wool<br>slabs | Asbestos<br>cement cavity<br>deck: single skin<br>or cavity |                      |    |                                                            |
| Pitched roof with two or<br>three layer felt 13 kg/10 kg;<br>asbestos bitumen bonding<br>compound between layers<br>or | 1. Type 1C, self-finished or<br>lightly sanded bitumen felt<br>minimum 13 kg<br>2. Type 1C, self-finished or<br>lightly sanded bitumen felt,<br>minimum 13 kg<br>3. Type 2B, self-finished or<br>lightly sanded bitumen asbes-<br>tos felt, minimum 13 kg<br>4. Type 5A, bitumen glass fibre<br>felt, minimum 13 kg<br>Type 1E, mineral surfaced bitu-<br>men felt 36.3 kg | Type 1E, Mineral surfaced<br>bitump felt 36.3 kg<br>Type 2C, mineral surfaced as-<br>bestos bitumen felt 36.3 kg<br>Type 2C, mineral surfaced<br>asbestos bitumen felt 36.3 kg<br>Type 5B, mineral surfaced bitu-<br>men, glass fibre felt 27.4 kg | CC<br>BB<br>AB<br>BC<br>CC                                                                     | CC                                                                       | AC                                      | AC                                             | —                                                           | AC                   | AC |                                                            |
|                                                                                                                        |                                                                                                                                                                                                                                                                                                                                                                            |                                                                                                                                                                                                                                                    |                                                                                                | BB                                                                       | AB                                      | AA                                             | AA                                                          | AA                   | AA |                                                            |
|                                                                                                                        |                                                                                                                                                                                                                                                                                                                                                                            |                                                                                                                                                                                                                                                    |                                                                                                | AB                                                                       | AB                                      | AA                                             | AA                                                          | AA                   | AA |                                                            |
|                                                                                                                        |                                                                                                                                                                                                                                                                                                                                                                            |                                                                                                                                                                                                                                                    |                                                                                                | BC                                                                       | AC                                      | AB                                             | AB                                                          | AB                   | AB |                                                            |
| Pitched roof with single<br>layer felt                                                                                 |                                                                                                                                                                                                                                                                                                                                                                            |                                                                                                                                                                                                                                                    | CC                                                                                             | CC                                                                       | AC                                      | AC                                             | AC                                                          | AC                   | AC |                                                            |

## Notes:

Any reference in this part of this table to a type of layer of felt is a reference to that type as listed in BS 747:1961—

- (a) with bitumen-bodded mineral chippings 9.54 mm by 15.9 mm spread evenly shoulder to shoulder 49.18—57.37 mm<sup>2</sup> per tone  
 (b) with bitumen-bodded tiles of asbestos cement or tiles of other non-combustible material.



# SCHEDULE 1

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

(Bylaws 121(3)(b)(i), 126(1), 138(1), 142(2) and (3),  
203 and 206(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 the 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 bylaw 205(2).

### PART I—BUILDINGS OTHER THAN SINGLE STOREY BUILDINGS

| Purpose group<br>(1)                                        | <i>Minimum period of fire resistance<br/>(in hours) for elements of<br/>structure(*) forming part of—</i> |                                        |                                            |                                      |                       |
|-------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------|----------------------------------------|--------------------------------------------|--------------------------------------|-----------------------|
|                                                             | Height (in m)<br>(2)                                                                                      | Floor area (in m <sup>2</sup> )<br>(3) | Cubic capacity (in m <sup>3</sup> )<br>(4) | ground storey or upper storey<br>(5) | basement store<br>(6) |
| I (Small residential)                                       |                                                                                                           |                                        |                                            |                                      |                       |
| House having not more than three Storeys ... ..             | No limit                                                                                                  | No limit                               | No limit                                   | ½                                    | 1(a) x                |
| House having four storeys ...                               | No limit                                                                                                  | 250                                    | No limit                                   | 1(b)                                 | 1 x                   |
| House having any number of storeys ... ..                   | No limit                                                                                                  | No limit                               | No limit                                   | 1                                    | 1½                    |
| II (Institutional)                                          | 28<br>over 28                                                                                             | 2 000<br>2 000                         | No limit<br>No limit                       | 1<br>1½                              | 1½<br>2               |
| III (Other residential)                                     |                                                                                                           |                                        |                                            |                                      |                       |
| Building or part(†) having not more than two storeys ... .. | No limit                                                                                                  | 500                                    | No limit                                   | ½                                    | 1 x                   |
| Building or part (†) having three storeys ... ..            | No limit                                                                                                  | 250                                    | No limit                                   | 1 (b)                                | 1                     |
| Building having any number of storeys ... ..                | 28                                                                                                        | 3 000                                  | 8 500                                      | 1                                    | 1½                    |
| Building having any number of storeys ... ..                | No limit                                                                                                  | 2 000                                  | 5 500                                      | 1½                                   | 2                     |

| Purpose group<br>(1)       | <div>Maximum dimensions</div> <div>Minimum period of fire resistance (in hours) for elements of structure(*) forming part of—</div> |                                        |                                            |                                      |                       |
|----------------------------|-------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------|--------------------------------------------|--------------------------------------|-----------------------|
|                            | Height (in m)<br>(2)                                                                                                                | Floor area (in m <sup>2</sup> )<br>(3) | Cubic capacity (in m <sup>3</sup> )<br>(4) | ground storey or upper storey<br>(5) | basement store<br>(6) |
| IV (Office) ... ..         | 7.5                                                                                                                                 | 250                                    | No limit                                   | 0                                    | 1(c) x                |
|                            | 7.5                                                                                                                                 | 500                                    | No limit                                   | ½                                    | 1                     |
|                            | 15                                                                                                                                  | No limit                               | 3 500                                      | 1(b)                                 | 1                     |
|                            | 28                                                                                                                                  | 5 000                                  | 14 000                                     | 1                                    | 1½                    |
|                            | No limit                                                                                                                            | No limit                               | No limit                                   | 1½                                   | 2                     |
| V (Shop) ... ..            | 7.5                                                                                                                                 | 1150                                   | No limit                                   | 0                                    | 1(c) x                |
|                            | 7.5                                                                                                                                 | 500                                    | No limit                                   | ½                                    | 1                     |
|                            | 15                                                                                                                                  | No limit                               | 3 500                                      | 1(b)                                 | 1                     |
|                            | 28                                                                                                                                  | 1 000                                  | 7 000                                      | 1                                    | 2                     |
|                            | No limit                                                                                                                            | 2 000                                  | 7 000                                      | 2                                    | 4 y                   |
| VI (Factory) ... ..        | 7.5                                                                                                                                 | 250                                    | No limit                                   | 0                                    | 1(c) x                |
|                            | 7.5                                                                                                                                 | No limit                               | 1 700                                      | ½                                    | 1                     |
|                            | 15                                                                                                                                  | No limit                               | 4 250                                      | 1(b)                                 | 1                     |
|                            | 28                                                                                                                                  | No limit                               | 8 500                                      | 1                                    | 2                     |
|                            | 28 over 28                                                                                                                          | No limit 2 000                         | 28 000 5 500                               | 2 2                                  | 4 4                   |
| VII (Assembly) ... ..      | 7.5                                                                                                                                 | 250                                    | No limit                                   | 0                                    | 1(c) x                |
|                            | 7.5                                                                                                                                 | 500                                    | No limit                                   | ½                                    | 1                     |
|                            | 15                                                                                                                                  | No limit                               | 3 500                                      | (b)                                  | 1                     |
|                            | 28                                                                                                                                  | 5 000                                  | 14 000                                     | 1                                    | 1½                    |
|                            | No limit                                                                                                                            | No limit                               | No limit                                   | 1½                                   | 2                     |
| VIII (Storage and general) | 7.5                                                                                                                                 | 150                                    | No limit                                   | 0                                    | 1(c) x                |
|                            | 7.5                                                                                                                                 | 300                                    | No limit                                   | ½                                    | 1                     |
|                            | 15                                                                                                                                  | No limit                               | 1 700                                      | 1(b)                                 | 1                     |
|                            | 15                                                                                                                                  | No limit                               | 3 500                                      | 1                                    | 2                     |
|                            | 28                                                                                                                                  | No limit                               | 7 000                                      | 2                                    | 4                     |
|                            | 28                                                                                                                                  | No limit                               | 21 000                                     | 4                                    | 4                     |
|                            | over 28                                                                                                                             | 1 000                                  | No limit                                   | 4                                    | 4                     |

## Notes to Part I

For the purpose of bylaw 121(2) 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.
- (t) the expression “part” means a part which is separated as described in bylaw 205(2).
- (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 the 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>.
- x The items as marked are applicable only to buildings, not to compartments, except in relation to purpose group III, *see also* bylaw 121(3)(a) and bylaw 126(1).
- y If the building is fitted throughout with an automatic sprinkler system which complies with the relevant recommendation of CP402.201: 1952, any maximum limits specified in columns (3) and (4) shall be doubled.

*(Minimum periods of fire resistance)*

PART 2 — SINGLE STOREY BUILDINGS

| <i>Purpose group</i>       | <i>Maximum floor area (in m<sup>2</sup>)</i> | <i>Minimum period of fire resistance<br/>(in hours), for elements of<br/>structure</i> |
|----------------------------|----------------------------------------------|----------------------------------------------------------------------------------------|
| (1)                        | (2)                                          | (3)                                                                                    |
| I (Small residential)      | No limit                                     | $\frac{1}{2}$ z                                                                        |
| II (Institutional)         | 3 000                                        | $\frac{1}{2}$ z                                                                        |
| III (Other residential)    | 3 000                                        | $\frac{1}{2}$ z                                                                        |
| IV (Office)                | 3 000<br>No limit                            | $\frac{1}{2}$ z<br>1                                                                   |
| V (Shop)                   | 2 000<br>3 000<br>No limit                   | $\frac{1}{2}$ z<br>1<br>2                                                              |
| VI (Factory)               | 2 000<br>3 000<br>No limit                   | $\frac{1}{2}$ z<br>1<br>2                                                              |
| VII (Assembly)             | 3 000<br>No limit                            | $\frac{1}{2}$ z<br>1                                                                   |
| VIII (Storage and general) | 500<br>1 000<br>3 000<br>No limit            | $\frac{1}{2}$ z<br>1<br>2<br>4                                                         |

Notes to Part 2

For the purpose of bylaw 121(2), the period of fire resistance to be taken as being relevant to an element of structure is 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.

- z. See bylaw 121(3)(a) and bylaw 126(1).

## SUSPENDED CEILINGS

(Bylaws 127(6) and 209)

| Height of building<br>(1) | Type of floor<br>(2) | Required fire resistance<br>of floor<br>(3) | Description of suspended ceiling<br>(4)                                                                                                                                  |
|---------------------------|----------------------|---------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Less than 15 m ...        | Non-compartment ...  | 1 hour or less ...                          | Surface of ceiling exposed within the cavity not lower than Class 1 (as to surface spread of flame).                                                                     |
|                           | Compartment ...      | Less than 1 hour ...                        |                                                                                                                                                                          |
|                           | Compartment ...      | 1 hour ...                                  | Surface of ceiling exposed within the cavity not lower than Class O (as to surface spread of flame); supports and fixings for the ceiling non-combustible.               |
| 15 m or more ...          | Any ...              | 1 hour or less ...                          | Surface of ceiling exposed within the cavity not lower than Class O (as to surface spread of flame) and jointless; supports and fixings for the ceiling non-combustible. |
| Any ...                   | Any ...              | more than 1 hour ...                        | Ceiling of non-combustible construction and jointless; supports and fixings for the ceiling non-combustible.                                                             |

NOTE: Reference to classes are as specified in bylaw 194.

## NOTIONAL PERIODS OF FIRE RESISTANCE

(Bylaws 138(3) and 214)

In this Table—

(a) “Class 1 aggregate” means foamed slag, pumice, blastfurnace slag, pelleted fly ash, crushed brick and burnt clay products (including expanded clay), well burnt clinker and crushed limestone.

“Class 2 aggregate” means flint gravel, granite, and all crushed natural stones other than limestone.

(b) Any reference to plaster means—

(i) in the case of an external wall 1m or more from the relevant boundary, plaster applied on the internal face only;

(ii) in the case of any other wall, plaster applied on both faces;

(iii) if to plaster of a given thickness on the external face of a wall, except in the case of a reference to vermiculite-gypsum or perlite-gypsum plaster, rendering on the external face of the same thickness;

(iv) if to vermiculite-gypsum plaster, vermiculite-gypsum plaster of a mix within the range of 1½ to 2:1 by volume.

(c) Load assumed to be on inner leaf only except for fire resistance period of four hours.

## PART I

### WALLS

#### A. Masonry construction

| Construction and materials                                                     | Minimum thickness excluding plaster (in mm) for period of fire resistance of |        |         |       |       |                 |        |         |       |       |
|--------------------------------------------------------------------------------|------------------------------------------------------------------------------|--------|---------|-------|-------|-----------------|--------|---------|-------|-------|
|                                                                                | Loadbearing                                                                  |        |         |       |       | Non-loadbearing |        |         |       |       |
|                                                                                | 4 hrs.                                                                       | 2 hrs. | 1½ hrs. | 1 hr. | ½ hr. | 4 hrs.          | 2 hrs. | 1½ hrs. | 1 hr. | ½ hr. |
| 1. Reinforced concrete, minimum concrete cover to main reinforcement of 25 mm: |                                                                              |        |         |       |       |                 |        |         |       |       |
| (a) unplastered ... ..                                                         | 180                                                                          | 100    | 100     | 75    | 75    |                 |        |         |       |       |
| (b) 12.5 mm cement-sand plaster ...                                            | 180                                                                          | 100    | 100     | 75    | 75    |                 |        |         |       |       |
| (c) 12.5 mm gypsum-sand plaster ...                                            | 180                                                                          | 100    | 100     | 75    | 75    |                 |        |         |       |       |
| (d) 12.5 mm vermiculite-gypsum plaster                                         | 125                                                                          | 75     | 75      | 63    | 63    |                 |        |         |       |       |
| 2. No-fines concrete of Class 2 aggregate:                                     |                                                                              |        |         |       |       |                 |        |         |       |       |
| (a) 12.5 mm cement-sand plaster ...                                            |                                                                              |        |         |       |       | 150             |        |         |       |       |
| (b) 12.5 mm gypsum-sand plaster ...                                            |                                                                              |        |         |       |       | 150             |        |         |       |       |
| (c) 12.5 mm vermiculite-gypsum plaster                                         |                                                                              |        |         |       |       | 150             |        |         |       |       |
| 3. Bricks of clay, concrete or sand-lime:                                      |                                                                              |        |         |       |       |                 |        |         |       |       |
| (a) unplastered ... ..                                                         | 200                                                                          | 100    | 100     | 100   | 100   | 170             | 100    | 100     | 75    | 75    |
| (b) 12.5 mm cement-sand plaster                                                | 200                                                                          | 100    | 100     | 100   | 100   | 170             | 100    | 100     | 75    | 75    |
| (c) 12.5 mm gypsum-sand plaster                                                | 200                                                                          | 100    | 100     | 100   | 100   | 170             | 100    | 100     | 75    | 75    |
| (d) 12.5 mm vermiculite-gypsum or perlite-gypsum* plaster                      | 100                                                                          | 100    | 100     | 100   | 100   | 100             | 100    | 100     | 75    | 75    |
| 4. Concrete blocks of Class 1 aggregate:                                       |                                                                              |        |         |       |       |                 |        |         |       |       |
| (a) unplastered ... ..                                                         | 150                                                                          | 100    | 100     | 100   | 100   | 150             | 75     | 75      | 75    | 50    |
| (b) 12.5 mm cement-sand plaster                                                | 150                                                                          | 100    | 100     | 100   | 100   | 100             | 75     | 75      | 75    | 50    |
| (c) 12.5 mm gypsum-sand plaster                                                | 150                                                                          | 100    | 100     | 100   | 100   | 100             | 75     | 75      | 75    | 50    |
| (d) 12.5 mm vermiculite-gypsum plaster                                         | 100                                                                          | 100    | 100     | 100   | 100   | 75              | 75     | 62      | 50    | 50    |
| 5. Concrete blocks of Class 2 aggregate:                                       |                                                                              |        |         |       |       |                 |        |         |       |       |
| (a) unplastered ... ..                                                         |                                                                              | 100    | 100     | 100   | 100   | 150             | 100    | 100     | 75    | 50    |
| (b) 12.5 mm cement-sand plaster                                                |                                                                              | 100    | 100     | 100   | 100   | 150             | 100    | 100     | 75    | 50    |
| (c) 12.5 mm gypsum-sand plaster                                                |                                                                              | 100    | 100     | 100   | 100   | 150             | 100    | 100     | 75    | 50    |
| (d) 12.5 mm vermiculite-gypsum plaster                                         | 100                                                                          | 100    | 100     | 100   | 100   | 100             | 75     | 75      | 75    | 50    |
| 6. Autoclaved aerated concrete blocks density 475-1 200 kg/m³ ... ..           | 180                                                                          | 100    | 100     | 100   | 100   | 100             | 62     | 62      | 50    | 50    |

| Construction and materials                                                                                                                                | Minimum thickness excluding plaster (in mm) for period of fire resistance of |        |         |       |       |                 |        |         |       |       |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------|--------|---------|-------|-------|-----------------|--------|---------|-------|-------|
|                                                                                                                                                           | Loadbearing                                                                  |        |         |       |       | Non-loadbearing |        |         |       |       |
|                                                                                                                                                           | 4 hrs.                                                                       | 2 hrs. | 1½ hrs. | 1 hr. | ½ hr. | 4 hrs.          | 2 hrs. | 1½ hrs. | 1 hr. | ½ hr. |
| 7. Hollow concrete blocks, one cell in wall thickness, of Class 1 aggregate:                                                                              |                                                                              |        |         |       |       |                 |        |         |       |       |
| (a) unplastered ... ..                                                                                                                                    |                                                                              | 100    | 100     | 100   | 100   | 150             | 100    | 100     | 100   | 75    |
| (b) 12.5 mm cement-sand plaster ...                                                                                                                       |                                                                              | 100    | 100     | 100   | 100   | 150             | 100    | 75      | 75    | 75    |
| (c) 12.5 mm gypsum-sand plaster ...                                                                                                                       |                                                                              | 100    | 100     | 100   | 100   | 150             | 100    | 75      | 75    | 75    |
| (d) 12.5 mm vermiculite-gypsum plaster ...                                                                                                                |                                                                              | 100    | 100     | 100   | 100   | 100             | 75     | 75      | 62    | 62    |
| 8. Hollow concrete blocks, one cell in wall thickness, of Class 2 aggregate:                                                                              |                                                                              |        |         |       |       |                 |        |         |       |       |
| (a) unplastered ... ..                                                                                                                                    |                                                                              |        |         |       |       | 150             | 150    | 125     | 125   | 125   |
| (b) 12.5 mm cement-sand plaster ...                                                                                                                       |                                                                              |        |         |       |       | 150             | 150    | 125     | 125   | 100   |
| (c) 12.5 mm gypsum-sand plaster ...                                                                                                                       |                                                                              |        |         |       |       | 150             | 150    | 125     | 125   | 100   |
| (d) 12.5 mm vermiculite-gypsum plaster                                                                                                                    |                                                                              |        |         |       |       | 125             | 100    | 100     | 100   | 75    |
| 9. Cellular clay blocks not less than 50% solid:                                                                                                          |                                                                              |        |         |       |       |                 |        |         |       |       |
| (a) 12.5 mm cement-sand plaster ...                                                                                                                       |                                                                              |        |         |       |       |                 |        |         | 100   | 75    |
| (b) 12.5 mm gypsum-sand plaster ...                                                                                                                       |                                                                              |        |         |       |       |                 |        |         | 100   | 75    |
| (c) 12.5 mm vermiculite-gypsum plaster                                                                                                                    |                                                                              |        |         |       |       | 200             | 100    | 100     | 100   | 62    |
| 10. Cavity wall with outer leaf of bricks or blocks of clay, composition, concrete or sand-lime, not less than 100 mm thick and:                          |                                                                              |        |         |       |       |                 |        |         |       |       |
| (a) inner leaf of bricks or blocks of clay, composition, concrete or sand-lime ...                                                                        | 100                                                                          | 100    | 100     | 100   | 100   | 75              | 75     | 75      | 75    | 75    |
| (b) inner leaf of solid or hollow concrete bricks or blocks of Class 1 aggregate ... ..                                                                   | 100                                                                          | 100    | 100     | 100   | 100   | 75              | 75     | 75      | 75    | 75    |
| 11. Cavity wall with outer leaf of cellular clay blocks as 9 above and inner leaf of autoclaved aerated concrete blocks, density 475 – 1.200. kg/m ... .. | 150                                                                          | 100    | 100     | 100   | 100   | 75              | 75     | 75      | 75    | 75    |

\* Perlite-gypsum plaster to clay bricks only.

### B. Framed and composite construction (non-loadbearing)

[illegible]

| <i>Construction and materials</i> |     |                                                                                                         |     |     |     |     |     | <i>Period of<br/>fire resistance in hours</i> |
|-----------------------------------|-----|---------------------------------------------------------------------------------------------------------|-----|-----|-----|-----|-----|-----------------------------------------------|
|                                   | (g) | 19 mm plasterboard (or two layers of 9.5 mm fixed to break joint) without finish                        | ... | ... | ... | ... | ... | 1                                             |
|                                   | (h) | 19 mm plasterboard (or two layers of 9.5 mm) with vermiculite-gypsum plaster of thickness of—           |     |     |     |     |     |                                               |
|                                   |     | 16 mm                                                                                                   | ... | ... | ... | ... | ... | 2                                             |
|                                   |     | 10 mm                                                                                                   | ... | ... | ... | ... | ... | 1½                                            |
|                                   | (i) | 12.5 mm fibre insulating board with gypsum plaster of thickness of 12.5 mm                              |     |     |     |     |     | ½                                             |
|                                   | (j) | asbestos insulating board not less than 9 mm thick with 9 mm fillets to face of studs                   | ... | ... | ... | ... | ... | ½                                             |
|                                   | (k) | asbestos insulating board not less than 12 mm thick                                                     | ... | ... | ... | ... | ... | ½                                             |
|                                   | (l) | 25 mm wood wool slabs with gypsum plaster of thickness of 12.5 mm                                       | ... | ... | ... | ... | ... | 1                                             |
| 6.                                |     | Compressed straw slabs in timber frames finished on both faces with gypsum plaster of thickness of 5 mm | ... | ... | ... | ... | ... | 1                                             |
| 7.                                |     | Plasterboard 9.5 mm cellular core partition—                                                            |     |     |     |     |     |                                               |
|                                   | (a) | unplastered                                                                                             | ... | ... | ... | ... | ... | ½                                             |
|                                   | (b) | 12.5 mm gypsum plaster                                                                                  | ... | ... | ... | ... | ... | 1                                             |
|                                   | (c) | 22 mm vermiculite-gypsum plaster                                                                        | ... | ... | ... | ... | ... | 2                                             |
| 8.                                |     | Plasterboard 12.5 mm cellular core partition—                                                           |     |     |     |     |     |                                               |
|                                   | (a) | unplastered                                                                                             | ... | ... | ... | ... | ... | ½                                             |
|                                   | (b) | 12.5 mm gypsum plaster                                                                                  | ... | ... | ... | ... | ... | 1                                             |
|                                   | (c) | 16 mm vermiculite-gypsum plaster                                                                        | ... | ... | ... | ... | ... | 2                                             |
| 9.                                |     | Plasterboard 19 mm finished on both faces with 16 mm gypsum plaster                                     | ... | ... | ... | ... | ... | 1                                             |
| 10.                               |     | Plasterboard 12.5 mm bonded with neat gypsum plaster to each side of 19 mm plasterboard                 | ... | ... | ... | ... | ... | 1½                                            |
| 11.                               |     | Three layers of 19 mm plasterboard bonded with neat gypsum plaster                                      |     |     |     |     |     | 2                                             |
| 12.                               |     | Wood wool slab with 12.5 mm render or plaster of thickness of—                                          |     |     |     |     |     |                                               |
|                                   |     | 75 mm                                                                                                   | ... | ... | ... | ... | ... | 2                                             |
|                                   |     | 50 mm                                                                                                   | ... | ... | ... | ... | ... | 1                                             |
| 13.                               |     | Compressed straw slabs, with 75 mm by 12.5 mm wood cover strips to joints, of thickness of 50 mm        | ... | ... | ... | ... | ... | ½                                             |



C. External walls more than 1 m from the relevant boundary (non-load bearing)

| <i>Construction and materials</i> |                                                                                                           |                                                                          |     |     |     |     |     | <i>Period of<br/>fire resistance in hours</i> |
|-----------------------------------|-----------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------|-----|-----|-----|-----|-----|-----------------------------------------------|
| 1.                                | Steel frame with external cladding of non-combustible sheets and internal lining of—                      |                                                                          |     |     |     |     |     |                                               |
|                                   | (a)                                                                                                       | 9 mm asbestos insulating board                                           | ... | ... | ... | ... |     | 4                                             |
|                                   | (b)                                                                                                       | 12.5 mm cement-sand or gypsum plaster on metal lathing                   |     |     |     |     |     | 4                                             |
|                                   | (c)                                                                                                       | sprayed asbestos of thickness of 12.5 mm                                 | ... | ... | ... | ... |     | 4                                             |
|                                   | (d)                                                                                                       | two layers of 9.5 mm plasterboard                                        | ... | ... | ... | ... |     | ½                                             |
|                                   | (e)                                                                                                       | 9.5 mm plasterboard finished with gypsum plaster of thickness of 12.5 mm | ... | ... | ... | ... | ... | ½                                             |
|                                   | (f)                                                                                                       | 12.5 mm plasterboard finished with 5 mm gypsum plaster                   |     |     |     |     |     | ½                                             |
|                                   | (g)                                                                                                       | 50 mm compressed straw slabs                                             | ... | ... | ... | ... |     | ½                                             |
|                                   | (h)                                                                                                       | 50 mm compressed straw slabs finished with 5 mm gypsum plaster           | ... | ... | ... | ... | ... | 1                                             |
| *2.                               | Timber frame with external cladding of 10 mm cement-sand or cement-lime rendering and internal lining of— |                                                                          |     |     |     |     |     |                                               |
|                                   | (a)                                                                                                       | 9 mm asbestos insulating board                                           | ... | ... | ... | ... |     | 1                                             |
|                                   | (b)                                                                                                       | 16 mm gypsum plaster on metal lathing                                    |     |     |     |     |     | 1                                             |
|                                   | (c)                                                                                                       | 9.5 mm plasterboard finished with 12.5 mm gypsum plaster                 |     |     |     |     |     | 1                                             |
|                                   | (d)                                                                                                       | 12.5 mm plasterboard finished with 5 mm gypsum plaster                   |     |     |     |     |     | 1                                             |
|                                   | (e)                                                                                                       | 50 mm compressed straw slabs                                             | ... | ... | ... | ... |     | 1                                             |
|                                   | (f)                                                                                                       | aerated concrete blocks—                                                 |     |     |     |     |     |                                               |
|                                   |                                                                                                           | 500 mm                                                                   | ... | ... | ... | ... | ... | 3                                             |
|                                   |                                                                                                           | 62 mm                                                                    | ... | ... | ... | ... | ... | 4                                             |
|                                   |                                                                                                           | 75 mm                                                                    | ... | ... | ... | ... | ... | 4                                             |
|                                   |                                                                                                           | 100 mm                                                                   | ... | ... | ... | ... | ... | 4                                             |

| <i>Construction and materials</i> |                                                                                                                       |                                                          |     |     |     |     |     | <i>Period of<br/>fire resistance in hours</i> |
|-----------------------------------|-----------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------|-----|-----|-----|-----|-----|-----------------------------------------------|
| 3.                                | Timber frame with external cladding of 100 mm clay, concrete or sand-lime bricks or blocks, finished internally with— |                                                          |     |     |     |     |     |                                               |
|                                   | (a)                                                                                                                   | asbestos insulating board                                | ... | ... | ... | ... | ... | 4                                             |
|                                   | (b)                                                                                                                   | 16 mm gypsum plaster on metal lathing                    |     |     | ... | ... | ... | 4                                             |
| *4.                               | Timber frame with external cladding of weather boarding or 9.5 mm plywood and internal lining of—                     |                                                          |     |     |     |     |     |                                               |
|                                   | (a)                                                                                                                   | 9 mm asbestos insulating board                           |     | ... | ... | ... | ... | ½                                             |
|                                   | (b)                                                                                                                   | 16 mm gypsum plaster on metal lathing                    |     |     | ... | ... | ... | ½                                             |
|                                   | (c)                                                                                                                   | 9.5 mm plasterboard finished with 12.5 mm gypsum plaster |     |     |     |     |     | ½                                             |
|                                   | (d)                                                                                                                   | 12.5 mm plasterboard finished with 5 mm gypsum plaster   |     |     |     |     |     | ½                                             |
|                                   | (e)                                                                                                                   | 50 mm compressed straw slabs                             |     | ... | ... | ... | ... | ½                                             |
|                                   | (f)                                                                                                                   | 75 mm wood slabs faced each side with asbestos-cement    |     |     |     |     |     | 2                                             |
|                                   | (g)                                                                                                                   | aerated concrete blocks—                                 |     |     |     |     |     |                                               |
|                                   |                                                                                                                       | 50 mm                                                    | ... | ... | ... | ... | ... | 3                                             |
|                                   |                                                                                                                       | 62 mm                                                    | ... | ... | ... | ... | ... | 4                                             |
|                                   |                                                                                                                       | 75 mm                                                    | ... | ... | ... | ... | ... | 4                                             |
|                                   |                                                                                                                       | 100 mm                                                   | ... | ... | ... | ... | ... | 4                                             |

\* The presence of a combustible vapour barrier within the thickness of these constructions will not affect these periods of fire resistance.

## PART II

### REINFORCED CONCRETE COLUMNS

| <i>Construction and materials</i> |                                                                      |                                                                                                                                     |     |     | <i>Minimum dimension of concrete columns* without finish (in mm) for a fire resistance of—</i> |               |                |              |               |
|-----------------------------------|----------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------|-----|-----|------------------------------------------------------------------------------------------------|---------------|----------------|--------------|---------------|
|                                   |                                                                      |                                                                                                                                     |     |     | <i>4 hrs.</i>                                                                                  | <i>2 hrs.</i> | <i>1½ hrs.</i> | <i>1 hr.</i> | <i>½ hrs.</i> |
| 1.                                | (a)                                                                  | without plaster                                                                                                                     | ... | ... | 450                                                                                            | 300           | 250            | 200          | 150           |
|                                   | (b)                                                                  | with 12.5 mm cement-sand or gypsum-sand plaster on mesh reinforcement fixed around column                                           | ... | ... | 300                                                                                            | 225           | 150            | 150          | 150           |
|                                   | (c)                                                                  | finished with 12.5 mm encasement of vermiculite-gypsum plaster                                                                      | ... | ... | 275                                                                                            | 200           | 150            | 120          | 120           |
|                                   | (d)                                                                  | with 2.5 mm hard drawn steel wire fabric, of maximum pitch 150 mm in each direction, placed in concrete cover to main reinforcement | ... | ... | 300                                                                                            | 225           | 200            | 150          | 150           |
|                                   | (e)                                                                  | with limestone or light-weight aggregate as coarse aggregate                                                                        | ... | ... | 300                                                                                            | 225           | 200            | 200          | 150           |
| 2.                                | Built into †any separating wall, compartment wall or external wall‡— |                                                                                                                                     |     |     |                                                                                                |               |                |              |               |
|                                   | (a)                                                                  | without plaster                                                                                                                     | ... | ... | 180                                                                                            | 100           | 100            | 75           | 75            |
|                                   | (b)                                                                  | finished with 12.5 mm of vermiculite-gypsum plaster                                                                                 | ... | ... | 125                                                                                            | 75            | 75             | 63           | 63            |

\* The minimum dimension of a circular column is the diameter.

† No part of column projecting beyond either face of wall.

‡ Having not less fire resistance than that of the column and extending to the full height of, and not less than 600 mm on each side of, the column.

## PART III

## REINFORCED CONCRETE BEAMS

| <i>Construction and materials</i> |                                                                                         |     |     |     | <i>Minimum concrete over without finish to main reinforcement (in mm) for a fire resistance of—</i> |               |                |              |              |
|-----------------------------------|-----------------------------------------------------------------------------------------|-----|-----|-----|-----------------------------------------------------------------------------------------------------|---------------|----------------|--------------|--------------|
|                                   |                                                                                         |     |     |     | <i>4 hrs.</i>                                                                                       | <i>2 hrs.</i> | <i>1½ hrs.</i> | <i>1 hr.</i> | <i>½ hr.</i> |
| (a)                               | without plaster                                                                         | ... | ... | ... | 63                                                                                                  | 45            | 35             | 25           | 12.5         |
| (b)                               | finished with 12.5 mm vermiculite-gypsum plaster                                        |     |     |     | 25                                                                                                  | 12.5          | 12.5           | 12.5         | 12.5         |
| (c)                               | with 12.5 mm cement-sand or gypsum-sand plaster on mesh reinforcement fixed around beam |     |     |     | 50                                                                                                  | 30            | 20             | 12.5         | 12.5         |

## PART IV

## PRESTRESSED CONCRETE BEAMS WITH POST-TENSIONED STEEL

| <i>Cover reinforcement</i> | <i>Additional protection</i> |                                                                          |     |     | <i>Minimum concrete cover to tendons (in mm) for a fire resistance of—</i> |               |                |              |
|----------------------------|------------------------------|--------------------------------------------------------------------------|-----|-----|----------------------------------------------------------------------------|---------------|----------------|--------------|
|                            |                              |                                                                          |     |     | <i>4 hrs.</i>                                                              | <i>2 hrs.</i> | <i>1½ hrs.</i> | <i>1 hr.</i> |
| None                       | (a)                          | none                                                                     | ... | ... |                                                                            |               |                | 38           |
|                            | (b)                          | vermiculite concrete slabs (permanent shuttering 12.5 mm thick           |     |     |                                                                            | 38            | 25             | 25           |
|                            | (c)                          | plaster 12.5 mm thick on mesh reinforcement fixed around beam            |     |     |                                                                            | 50            | 38             | 25           |
|                            | (d)                          | vermiculite-gypsum plaster 12.5 mm thick or sprayed asbestos 10 mm thick | ... | ... |                                                                            | 38            | 25             | 25           |

| <i>Cover reinforcement</i>                                                                                                | <i>Additional protection</i>                                               | <i>Minimum concrete cover to tendons (in mm) for a fire resistance of—</i> |               |                |              |
|---------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------|----------------------------------------------------------------------------|---------------|----------------|--------------|
|                                                                                                                           |                                                                            | <i>4 hrs.</i>                                                              | <i>2 hrs.</i> | <i>1½ hrs.</i> | <i>1 hr.</i> |
| Light mesh reinforcement (having a minimum concrete cover of 25 mm) to retain the concrete in position around the tendons | (a) none ... ..                                                            | 100                                                                        | 63            | 63             |              |
|                                                                                                                           | (b) plaster 12.5 mm thick on mesh reinforcement ... ..                     | 90                                                                         |               |                |              |
|                                                                                                                           | (c) vermiculite concrete slabs (permanent shuttering) 12.5 mm thick ... .. | 75                                                                         |               |                |              |
|                                                                                                                           | (d) vermiculite concrete slabs (permanent shuttering) 25 mm thick          | 50                                                                         |               |                |              |
|                                                                                                                           | (e) vermiculite-gypsum plaster 12.5 mm thick ... ..                        | 50                                                                         |               |                |              |
|                                                                                                                           | (f) vermiculite-gypsum plaster 22 mm thick ... ..                          | 50                                                                         |               |                |              |
|                                                                                                                           | (g) sprayed asbestos 10 mm thick ...                                       | 75                                                                         |               |                |              |
|                                                                                                                           | (h) sprayed asbestos 19 mm thick ...                                       | 50                                                                         |               |                | 38           |

## PART V

### STRUCTURAL STEEL

#### A. Encased steel stanchions (Mass per metre not less than 45 kg)

| <i>Construction and materials</i>                                                                | <i>Minimum thickness (in mm) of protection for a fire resistance of—</i> |               |                |              |              |
|--------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------|---------------|----------------|--------------|--------------|
|                                                                                                  | <i>4 hrs.</i>                                                            | <i>2 hrs.</i> | <i>1½ hrs.</i> | <i>1 hr.</i> | <i>½ hr.</i> |
| (A) Solid Protection* (unplastered)                                                              |                                                                          |               |                |              |              |
| 1. Concrete not leaner than 1:2:4 mix with natural aggregates—                                   |                                                                          |               |                |              |              |
| (a) concrete not assumed to be loadbearing, reinforced† ... ..                                   | 50                                                                       | 25            | 25             | 25           | 25           |
| (b) concrete assumed to be loadbearing, reinforced in accordance with BS 449: Part 2:1969 ... .. | 75                                                                       | 50            | 50             | 50           | 50           |
| 2. Solid bricks of clay, composition or sand-lime                                                | 75                                                                       | 50            | 50             | 50           | 50           |

| Construction and materials                                                                                        | Minimum thickness (in mm) of protection for a fire resistance of— |        |         |       |       |
|-------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------|--------|---------|-------|-------|
|                                                                                                                   | 4 hrs.                                                            | 2 hrs. | 1½ hrs. | 1 hr. | ½ hr. |
| 3. Solid blocks of foamed slag or pumice concrete reinforced† in every horizontal joint ...                       | 62                                                                | 50     | 50      | 50    | 50    |
| 4. Sprayed asbestos of density 140—240 kg/m³                                                                      | 44                                                                | 19     | 15      | 10    | 10    |
| 5. Sprayed vermiculite-cement ... ..                                                                              |                                                                   | 38     | 32      | 19    | 12.5  |
| (B) Hollow Protection‡                                                                                            |                                                                   |        |         |       |       |
| 1. Solid bricks of clay, composition or sand-lime reinforced in every horizontal joint, unplastered ... ..        | 115                                                               | 50     | 50      | 50    | 50    |
| 2. Solid blocks of foamed slag or pumice concrete reinforced§ in every horizontal joint, unplastered ... ..       | 75                                                                | 50     | 50      | 50    | 50    |
| 3. Metal lathing with gypsum or cement-lime plaster of thickness of ... ..                                        |                                                                   | 38§    | 25      | 19    | 12.5  |
| 4. (a) Metal lathing with vermiculite-gypsum plaster of thickness of ... ..                                       | 50§                                                               | 19     | 16      | 12.5  | 12.5  |
| (b) Metal lathing spaced 25 mm from flanges with vermiculite-gypsum or perlite gypsum plaster of thickness of ... | 44                                                                | 19     | 12.5    | 12.5  | 12.5  |
| 5. Gypsum plasterboard with 1.6 mm wire binding at 100 mm pitch—                                                  |                                                                   |        |         |       |       |
| (a) 9.5 mm plasterboard with gypsum plaster of thickness of ... ..                                                |                                                                   |        |         | 12.5  | 12.5  |
| (b) 19 mm plasterboard with gypsum plaster of thickness of ... ..                                                 |                                                                   | 12.5   | 10      | 7     | 7     |
| 6. Gypsum plasterboard with 1.6 mm wire binding at 100 mm pitch—                                                  |                                                                   |        |         |       |       |
| (a) 9.5 mm plasterboard with vermiculite-gypsum plaster of thickness of ... ..                                    |                                                                   | 16     | 12.5    | 10    | 7     |
| (b) 19 mm plasterboard with vermiculite-gypsum plaster of thickness of ... ..                                     | 32§                                                               | 10     | 10      | 7     | 7     |

| <i>Construction and materials</i> |                                                                                                                                              | <i>Minimum thickness (in mm) of protection for a fire resistance of—</i> |               |                |              |              |
|-----------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------|---------------|----------------|--------------|--------------|
|                                   |                                                                                                                                              | <i>4 hrs.</i>                                                            | <i>2 hrs.</i> | <i>1½ hrs.</i> | <i>1 hr.</i> | <i>½ hr.</i> |
| 7.                                | Metal lathing with sprayed asbestos of thickness of ... ..                                                                                   | 44                                                                       | 19            | 15             | 10           | 10           |
| 8.                                | Vermiculite-cement slabs of 4:1 mix reinforced with wire mesh and finished with plaster skim. Slabs of thickness of ... ..                   | 63                                                                       | 25            | 25             | 25           | 25           |
| 9.                                | Asbestos insulating boards of density 510— 880 kg/m <sup>3</sup> (screwed to 25 mm thick asbestos battens for ½ hour and 1 hour periods) ... |                                                                          | 25            | 19             | 12           | 9            |

\* Solid protection means a casing which is bedded close to the steel without intervening cavities and with all joints in the casing made full and solid.

† Reinforcement shall consist of steel binding wire not less than 2.3 mm in thickness, or a steel mesh weighing not less than 0.48 kg/m<sup>2</sup>. In concrete protection, the spacing of that reinforcement shall not exceed 150 mm in any direction.

‡ Hollow protection means that there is a void between the protective material and the steel. All hollow protection to columns shall be effectively sealed at each floor level.

§ Light mesh reinforcement required 12.5 mm to 19 mm below surface unless special corner beads are used.

**B. Encased steel beams (Mass per metre not less than 30 kg).**

| <i>Construction and materials</i>          |                                                                                              | <i>Minimum thickness (in mm) of protection for a fire resistance of—</i> |               |                |              |              |
|--------------------------------------------|----------------------------------------------------------------------------------------------|--------------------------------------------------------------------------|---------------|----------------|--------------|--------------|
|                                            |                                                                                              | <i>4 hrs.</i>                                                            | <i>2 hrs.</i> | <i>1½ hrs.</i> | <i>1 hr.</i> | <i>½ hr.</i> |
| <i>(A) Solid Protection† (unplastered)</i> |                                                                                              |                                                                          |               |                |              |              |
| 1.                                         | <i>Concrete not leaner than 1:2:4 mix with natural aggregates—</i>                           |                                                                          |               |                |              |              |
| (a)                                        | concrete not assumed to be loadbearing, reinforced‡ ... ..                                   | 63                                                                       | 25            | 25             | 25           | 25           |
| (b)                                        | concrete assumed to be loadbearing, reinforced in accordance with BS 449: Part 2:1969 ... .. | 75                                                                       | 50            | 50             | 50           | 50           |

| Construction and materials                                                                           | Minimum thickness (in mm) of protection for a fire resistance of— |        |         |       |       |
|------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------|--------|---------|-------|-------|
|                                                                                                      | 4 hrs.                                                            | 2 hrs. | 1½ hrs. | 1 hr. | ½ hr. |
| 2. Sprayed asbestos of density 140—240 kg/m <sup>3</sup>                                             | 44                                                                | 19     | 15      | 10    | 10    |
| 3. Sprayed vermiculite-cement ... ..                                                                 |                                                                   | 38     | 32      | 19    | 12.5  |
| (B) Hollow Protection*                                                                               |                                                                   |        |         |       |       |
| 1. Metal lathing—                                                                                    |                                                                   |        |         |       |       |
| (a) with cement-lime plaster of thickness of                                                         |                                                                   | 38     | 25      | 19    | 12.5  |
| (b) with gypsum plaster of thickness of ...                                                          |                                                                   | 22     | 19      | 16    | 12.5  |
| (c) with vermiculite-gypsum or perlite-gypsum plaster of thickness of ... ..                         | 32                                                                | 12.5   | 12.5    | 12.5  | 12.5  |
| 2. Gypsum plasterboard with 1.6 mm wire binding at 100 mm pitch—                                     |                                                                   |        |         |       |       |
| (a) 9.5 mm plasterboard with gypsum plaster of thickness of ... ..                                   |                                                                   |        |         | 12.5  | 12.5  |
| (b) 19 mm plasterboard with gypsum plaster of thickness of ... ..                                    |                                                                   | 12.5   | 10      | 7     | 7     |
| 3. Plasterboard with 1.6 mm wire binding at 100 mm pitch—                                            |                                                                   |        |         |       |       |
| (a) 9.5 mm plasterboard nailed to wooden cradles finished with gypsum plaster of thickness of ... .. |                                                                   |        |         |       | 12.5  |
| (b) 9.5 mm plasterboard with vermiculite-gypsum plaster of thickness of ... ..                       |                                                                   | 16     | 12.5    | 10    | 7     |
| (c) 19 mm plasterboard with vermiculite-gypsum plaster of thickness of ... ..                        | 32†                                                               | 10     | 10      | 7     | 7     |
| (d) 19 mm plasterboard with gypsum plaster of thickness of ... ..                                    |                                                                   | 12.5   |         |       |       |



| <i>Construction and materials</i> |                                                                                                                                                        | <i>Minimum thickness (in mm) of protection for a fire resistance of—</i> |               |                |              |              |
|-----------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------|---------------|----------------|--------------|--------------|
|                                   |                                                                                                                                                        | <i>4 hrs.</i>                                                            | <i>2 hrs.</i> | <i>1½ hrs.</i> | <i>1 hr.</i> | <i>½ hr.</i> |
| 4.                                | Metal lathing with sprayed asbestos of density 140—240 kg/m <sup>3</sup> and of thickness of ...                                                       | 44                                                                       | 19            | 15             | 10           | 10           |
| 5.                                | Asbestos insulating boards of density 510—880 kg/m <sup>3</sup> (screwed to 25 mm thick asbestos battens for ½ hour and 1 hour periods) ...            |                                                                          | 25            | 19             | 12           | 9            |
| 6.                                | Vermiculite-cement slabs of 4:1 mix reinforced with wire mesh and finished with wire mesh and finished with plaster skin. Slabs of thickness of ... .. | 63                                                                       | 25            | 25             | 25           | 25           |
| 7.                                | Gypsum-sand plaster 12.5 mm thick applied to heavy duty (Type B as designated in BS 1105:1963) wood wool slabs of thickness of ...                     |                                                                          | 50            | 38             | 38           | 38           |

- \* Hollow protection means that there is a void between the protective material and the steel. All hollow protection to columns shall be effectively sealed at each floor level.
- † Solid protection means a casing which is bedded close to the steel without intervening cavities and with all joints in the casing made full and solid.
- ‡ Reinforcement shall consist of steel binding wire not less than 2.3 mm in thickness, or a steel mesh weighing not less than 0.48 kg/m<sup>2</sup>. In concrete protection, the spacing of that reinforcement shall not exceed 150 mm in any direction.

## PART VI

## STRUCTURAL ALUMINIUM

Encased aluminium alloy stanchions and beams (Mass per metre not less than 16 kg)

| <i>Construction and materials</i>                                                                                                        | <i>Minimum thickness (in mm) of protection for a fire resistance of—</i> |               |                |              |              |
|------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------|---------------|----------------|--------------|--------------|
|                                                                                                                                          | <i>4 hrs.</i>                                                            | <i>2 hrs.</i> | <i>1½ hrs.</i> | <i>1 hr.</i> | <i>½ hr.</i> |
| (A) Solid Protection*                                                                                                                    |                                                                          |               |                |              |              |
| 1. Sprayed asbestos of density 140—240 kg/m <sup>3</sup>                                                                                 |                                                                          | 48            | 32             | 19           | 10           |
| 2. Sprayed vermiculite-cement ... ..                                                                                                     |                                                                          |               |                | 44           | 19           |
| (B) Hollow Protection†                                                                                                                   |                                                                          |               |                |              |              |
| 1. Metal lathing with vermiculite-gypsum or perlite-gypsum plaster of thickness of ...                                                   |                                                                          | 32            | 22             | 16           | 12.5         |
| 2. Metal lathing finished with neat gypsum plaster of thickness of ... ..                                                                |                                                                          |               |                | 19           | 12.5         |
| 3. Gypsum plasterboard 19 mm thick with 1.6 mm wire binding at 100 mm pitch finished with gypsum-vermiculite plaster of thickness of ... |                                                                          | 22            | 16             | 10           | 10           |
| 4. Asbestos insulating board of density 510—880 kg/m <sup>3</sup> (screwed to 25 mm thick asbestos battens for the ½ hour period) .. ..  |                                                                          |               | 34             | 21           | 9            |

\* Solid protection means a casing which is bedded close to the alloy without intervening cavities and with all joints in the casing made full and solid.

† Hollow protection means that there is a void between the protected material and the alloy. All hollow protection to columns shall be effectively sealed at each floor level.

PART VII  
TIMBER FLOORS

| Construction and materials                                                                                                  | Minimum thickness (in mm)<br>for fire resistance of— |            |                    |
|-----------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------|------------|--------------------|
|                                                                                                                             | 1 hr.                                                | ½ hr.      | modified‡<br>½ hr. |
| (A) Plain edge boarding on timber joists not less than 38 mm wide with ceiling of—                                          |                                                      |            |                    |
| (i) timber lath and plaster—<br>thickness of plaster ... ..                                                                 |                                                      |            | 16                 |
| (ii) timber lath and plaster with plaster of minimum thickness of 16 mm covered on underside with plasterboard of thickness |                                                      | 12.5       |                    |
| (iii) metal lathing and plaster— thickness<br>of plaster (a) gypsum ...<br>(b) vermiculite ...                              |                                                      | 16<br>12.5 |                    |
| (iv) one layer of plasterboard of thickness                                                                                 |                                                      |            | 12.5               |
| (v) one layer of plasterboard of minimum thickness of 9.5 mm finished with gypsum plaster of thickness ... ..               |                                                      |            | 12.5               |
| (vi) one layer of plasterboard of minimum thickness of 12.5 mm finished with gypsum plaster of thickness ... ..             |                                                      | 12.5       |                    |
| (vii) two layers of plasterboard of total thickness ... ..                                                                  |                                                      | 25         | 19                 |
| (viii) two layers of plasterboard each of minimum thickness of 9.5 mm finished with gypsum plaster of thickness ... ..      |                                                      | 5          |                    |
| (ix) one layer of fibre insulating board of minimum thickness of 12.5 mm finished with gypsum plaster of thickness ...      |                                                      |            | 12.5               |
| (x) one layer of asbestos insulating board of minimum thickness ... ..                                                      |                                                      | 12         |                    |
| (xi) wood wool slab 25 mm thick finished with gypsum plaster of thickness ...                                               |                                                      | 5          |                    |

| Construction and materials                                                                                                                                           | Minimum thickness (in mm)<br>for fire resistance of— |            |                                |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------|------------|--------------------------------|
|                                                                                                                                                                      | 1 hr.                                                | ½ hr.      | modified <sup>‡</sup><br>½ hr. |
| (B) Tongued and grooved boarding of not less than 16 mm (finished) thickness* on timber joists not less than 38 mm wide with ceiling of—                             |                                                      |            |                                |
| (i) timber lath and plaster—<br>thickness of plaster ... ..                                                                                                          |                                                      |            | 16                             |
| (ii) timber lath and plaster with plaster of minimum thickness of 16 mm covered on underside with plasterboard of thickness                                          |                                                      | 9.5        |                                |
| (iii) metal lathing and plaster—<br>thickness of plaster (a) gypsum ...<br>(b) vermiculite ...                                                                       | 22<br>12.5                                           | 16<br>12.5 |                                |
| (iv) one layer of plasterboard of thickness                                                                                                                          |                                                      |            | 9.5                            |
| (v) one layer of plasterboard of minimum thickness of 9.5 mm finished with—<br>(a) gypsum plaster of thickness<br>(b) vermiculite-gypsum plaster of thickness ... .. | 12.5                                                 | 12.5       |                                |
| (vi) one layer of plasterboard of minimum thickness of 12.5 mm finished with gypsum plaster of thickness ... ..                                                      |                                                      | 5          |                                |
| (vii) two layers of plasterboard of total thickness ... ..                                                                                                           |                                                      | 22         |                                |
| (viii) one layer of fibre insulating board of minimum thickness of 12.5 mm finished with gypsum plaster of thickness ...                                             |                                                      |            | 5                              |
| (ix) one layer of asbestos insulating board of minimum thickness ... ..                                                                                              |                                                      | 9          |                                |
| (x) one layer of asbestos insulating board of minimum thickness of 12 mm finished on top with glass fibre or mineral wool of thickness ... ..                        | 25                                                   |            |                                |

\* Or an equivalent thickness of wood chipboard.

<sup>‡</sup> The term “modified ½ hour” refer to the requirements specified in bylaw 213.

| Construction and materials                                                                                                                          | Minimum thickness (in mm)<br>for fire resistance of— |       |                    |
|-----------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------|-------|--------------------|
|                                                                                                                                                     | 1 hr.                                                | ½ hr. | modified‡<br>½ hr. |
| (xi) wood wool slab 25 mm thick finished with—                                                                                                      |                                                      |       |                    |
| (a) gypsum plaster of thickness ...                                                                                                                 |                                                      | 5     |                    |
| (b) vermiculite-gypsum plaster of thickness ... ..                                                                                                  | 10                                                   |       |                    |
| (C) Tongued and grooved boarding of not less than 21 (finished) thickness* on timber joist not less than 175 mm deep by 50 mm wide with ceiling of— |                                                      |       |                    |
| (i) timber lath and plaster—                                                                                                                        |                                                      |       |                    |
| thickness of plaster ... ..                                                                                                                         |                                                      | 16    |                    |
| (ii) metal lathing and plaster—                                                                                                                     |                                                      |       |                    |
| thickness of plaster ... ..                                                                                                                         |                                                      | 16    |                    |
| (iii) metal lathing and sprayed asbestos† to thickness of ... ..                                                                                    | 19                                                   | 12.5  |                    |
| (iv) one layer of plasterboard of thickness                                                                                                         |                                                      |       | 9.5                |
| (v) one layer of plasterboard of minimum thickness of 9.5 mm finished with—                                                                         |                                                      |       |                    |
| (a) gypsum plaster of thickness ...                                                                                                                 |                                                      | 12.5  |                    |
| (b) vermiculite-gypsum plaster of thickness ... ..                                                                                                  | 12.5                                                 |       |                    |
| (vi) one layer of plasterboard of minimum thickness of 12.5 mm finished with gypsum plaster of thickness ... ..                                     |                                                      | 5     |                    |
| (vii) two layers of plasterboard of total thickness ... ..                                                                                          |                                                      | 19    |                    |
| (viii) one layer of fibre insulating board of thickness ... ..                                                                                      |                                                      |       | 12.5               |
| (ix) one layer of fibre insulating board of minimum thickness of 12.5 mm finished with gypsum plaster of thickness ...                              |                                                      | 12.5  |                    |

\* Or an equivalent thickness of wood chipboard.

† Sprayed asbestos in accordance with BS 3590:1970.

‡ The term "modified ½ hour" refer to the requirements specified in bylaw 213.

| Construction and materials                                     | Minimum thickness (in mm)<br>for fire resistance of— |       |                    |  |
|----------------------------------------------------------------|------------------------------------------------------|-------|--------------------|--|
|                                                                | 1 hr.                                                | ½ hr. | modified‡<br>½ hr. |  |
| (x) one layer of asbestos insulating board of thickness ... .. | 10                                                   | 6     |                    |  |
| (xi) wood wool slab 25 mm thick finished with—                 |                                                      | 5     |                    |  |
| (a) gypsum plaster of thickness ...                            |                                                      |       |                    |  |
| (b) vermiculite-gypsum plaster of thickness ... ..             |                                                      |       |                    |  |

\* Or an equivalent thickness of wood chipboard.

† Sprayed asbestos in accordance with BS 3590:1970.

‡ The term “modified ½ hour” refer to the requirements specified in bylaw 213.

### PART VIII CONCRETE FLOORS

| <i>Construction and materials</i>                                            | <i>Minimum thickness of solid substance including screed (in mm)</i> | <i>Ceiling finish for a fire resistance of—</i> |                      |                      |                  |               |
|------------------------------------------------------------------------------|----------------------------------------------------------------------|-------------------------------------------------|----------------------|----------------------|------------------|---------------|
|                                                                              |                                                                      | <i>4 hours</i>                                  | <i>2 hours</i>       | <i>1½ hours</i>      | <i>1 hour</i>    | <i>½ hour</i> |
| Solid flat slab or filler joist floor.<br>Units of channel or T section      | 90                                                                   | 25 mm V or 25 mm A                              | 10 mm V or 12.5 mm A | 10 mm V or 12.5 mm A | 7 mm V or 7 mm A | nil           |
|                                                                              | 100                                                                  | 19 mm V or 19 mm A                              | 7 mm V               | 7 mm V               | nil              | nil           |
|                                                                              | 125                                                                  | 10 mm V or 12.5 mm A                            | nil                  | nil                  | nil              | nil           |
|                                                                              | 150                                                                  | nil                                             | nil                  | nil                  | nil              | nil           |
| Solid flat slab or filler joist floor with 25 mm wood wool slab ceiling base | 90                                                                   |                                                 |                      | 12.5 mm G            | nil              | nil           |
|                                                                              | 100                                                                  |                                                 | nil                  | nil                  | nil              | nil           |
|                                                                              | 125                                                                  | 12.5 mm G                                       | nil                  | nil                  | nil              | nil           |
|                                                                              | 150                                                                  | nil                                             | nil                  | nil                  | nil              | nil           |
| Units of inverted U section with minimum thickness at crown.                 | 63                                                                   |                                                 |                      |                      |                  | nil           |
|                                                                              | 75                                                                   |                                                 |                      |                      | nil              | nil           |
|                                                                              | 100                                                                  |                                                 | nil                  | nil                  | nil              | nil           |
|                                                                              | 150                                                                  | nil                                             | nil                  | nil                  | nil              | nil           |
| Hollow block construction or units of box or I section                       | 63                                                                   |                                                 |                      |                      |                  | nil           |
|                                                                              | 75                                                                   |                                                 |                      |                      | nil              | nil           |
|                                                                              | 90                                                                   |                                                 | nil                  | nil                  | nil              | nil           |
|                                                                              | 125                                                                  | nil                                             | nil                  | nil                  | nil              | nil           |

| Construction and materials           | Minimum thickness of solid substance including screed (in mm) | Ceiling finish for a fire resistance of—                   |                                      |                                      |                                      |        |
|--------------------------------------|---------------------------------------------------------------|------------------------------------------------------------|--------------------------------------|--------------------------------------|--------------------------------------|--------|
|                                      |                                                               | 4 hours                                                    | 2 hours                              | 1½ hours                             | 1 hour                               | ½ hour |
| Cellular steel with concrete topping | 63                                                            | 12.5 mm V suspended on metal lathing or 12.5 mm A (direct) | 12.5 mm G suspended on metal lathing | 12.5 mm G suspended on metal lathing | 12.5 mm G suspended on metal lathing | nil    |

“V”— ermiculite-gypsum plaster. “A”— Sprayed asbestos in accordance with BS 3590:1970. “G”— gypsum plaster

NOTE:

Where a column relating to ceiling finish contains no entry opposite a specification, the notional period of fire resistance specified in that column is not applicable.

### SCHEDULE J

#### TABLE OF REQUIREMENTS FOR FIRE EXTINGUISHMENT ALARM SYSTEMS AND EMERGENCY LIGHTING

(Bylaws 215(1) and 229(1))

| Occupancy                                                              | Extinguishing System<br>Note 2 | Fire Alarm System<br>Note 3 | Emergency Lighting<br>Note 4 |
|------------------------------------------------------------------------|--------------------------------|-----------------------------|------------------------------|
| I. SMALL RESIDENTIAL                                                   |                                |                             |                              |
| Private Dwelling House                                                 |                                |                             |                              |
| Terrace Type                                                           | —                              | —                           | —                            |
| Semi-Detached                                                          |                                |                             |                              |
| II. INSTITUTIONAL                                                      |                                |                             |                              |
| 1. EDUCATIONAL OCCUPANCIES                                             |                                |                             |                              |
| (i) Used for instructional purpose only. Open design balcony approach. |                                |                             |                              |
| (a) 1 or 2 storeys                                                     | —                              | —                           | —                            |
| (b) 3 to 5 storeys                                                     | G                              | —                           | —                            |
| (c) 6 to 10 storeys                                                    | G                              | 2                           | a                            |
| (d) 11 storeys and above                                               | G                              | 1+2                         | a                            |
| (ii) Canteen/Kitchen detached                                          | —                              | —                           | —                            |
| (iii) Laboratory over 1,000 sq. m                                      | G                              | 1+2                         | a                            |
| (iv) Library                                                           |                                |                             |                              |
| (a) Single storey                                                      |                                |                             |                              |
| 1. 500 sq. m or less                                                   | —                              | —                           | —                            |

| <i>Occupancy</i>                                                                 | <i>Extinguishing System</i><br><i>Note 2</i> | <i>Fire Alarm System</i><br><i>Note 3</i> | <i>Emergency Lighting</i><br><i>Note 4</i> |
|----------------------------------------------------------------------------------|----------------------------------------------|-------------------------------------------|--------------------------------------------|
| 2.01 sq. m to 1,000 sq. m                                                        | G                                            | 2                                         | <i>a</i>                                   |
| 3.501 sq. m to 1,000 sq. m<br>(central air-conditioning)                         | G                                            | 1+2                                       | <i>a</i>                                   |
| 4. More than 1,000<br>Sq. m                                                      | AG                                           | 1+2                                       | <i>b or c</i>                              |
| (b) 2 storeys<br>(Total Floor Area)                                              |                                              |                                           |                                            |
| 1. 500 sq. m or less                                                             | G                                            | 2                                         | <i>a</i>                                   |
| 2. 501 sq. m to 1,000 sq. m                                                      | G                                            | 1+2                                       | <i>a</i>                                   |
| 3. More than 1,000 sq. m<br>(central air-conditioning)                           | AG                                           | 1+2                                       | <i>b or c</i>                              |
| (c) 3 storeys or more<br>(Total Floor Area)                                      |                                              |                                           |                                            |
| 1. 1,000 sq. m or less                                                           | G                                            | 1+2                                       | <i>a</i>                                   |
| 2. More than 1,000 sq. m                                                         | AG                                           | 1+2                                       | <i>b or c</i>                              |
| Note 1 a) Heat Detector of<br>Note b) Smoke Detector<br>3. c) UV/IR Detector     |                                              |                                           |                                            |
| (v) Vocational School                                                            |                                              |                                           |                                            |
| (a) Wood working, metal work<br>(1 storey)                                       | G                                            | —                                         | —                                          |
| (b) 2 storeys or more                                                            | G                                            | 1+2                                       | <i>a</i>                                   |
| (c) Areas with central air-<br>conditioning more than<br>1,000 sq. m             | G                                            | 1+2                                       | <i>a</i>                                   |
| (d) Multi-purpose hall without<br>air-conditioning (1 storey)                    | G                                            |                                           |                                            |
| (vi) Grand hall with fly galleries<br>gridirons riggings for movable<br>scenery. | G                                            | 1+2                                       | <i>a</i>                                   |
| (vii) Buildings with central air-<br>conditioning                                |                                              |                                           |                                            |
| (a) 2 or more storeys                                                            | G                                            | 1+2                                       | <i>b or c</i>                              |
| (b) 500 sq. m to 1,000 sq. m                                                     | G                                            | 1+2                                       | <i>b or c</i>                              |
| (c) Exceeding 1,000 sq. m                                                        | AG                                           | 2                                         | <i>b or c</i>                              |
| (viii) Educational Institutions in<br>office complexes and shopping<br>complexes | To be considered as part of overall risk.    |                                           |                                            |



| <i>Occupancy</i>                               | <i>Extinguishing<br/>System<br/>Note 2</i>                                                                  | <i>Fire Alarm<br/>System<br/>Note 3</i> | <i>Emergency<br/>Lighting<br/>Note 4</i> |
|------------------------------------------------|-------------------------------------------------------------------------------------------------------------|-----------------------------------------|------------------------------------------|
| <b>2. HOSPITALS AND NURSING HOMES</b>          |                                                                                                             |                                         |                                          |
| (i) Clinic— day care                           |                                                                                                             |                                         |                                          |
| (a) Less than 250 sq. m                        | —                                                                                                           | —                                       | —                                        |
| (b) 251 sq. m to 500 sq. m                     | G                                                                                                           | —                                       | —                                        |
| (c) 501 sq. m & above                          | G                                                                                                           | 1+2                                     | a                                        |
| (ii) In-patient treatment                      |                                                                                                             |                                         |                                          |
| (a) Part of office or shopping complex         | To be considered as part of overall risk with special requirements emergency lighting stretcher lifts, etc. |                                         |                                          |
| (b) Not exceeding 250 sq. m per floor          |                                                                                                             |                                         |                                          |
| (ba) Single storey                             | —                                                                                                           | —                                       | a                                        |
| (bb) 2 storeys                                 | —                                                                                                           | 3                                       | a                                        |
| (bc) 3 or 4 storeys                            | G                                                                                                           | 3                                       | b                                        |
| (bd) 3 or 4 storeys (central air-conditioning) | G                                                                                                           | 1+3                                     | b                                        |
| (be) 5 or 6 storeys                            | G                                                                                                           | 1+3                                     | b or c                                   |
| (bf) 5 or 6 storeys (central air-conditioning) | AG                                                                                                          | 3                                       | b or c                                   |
| (bg) 18 metres & above                         | AG                                                                                                          | 3                                       | b or c                                   |
| (bh) Operating theatres                        | G                                                                                                           | 3                                       | a                                        |
| (c) Exceeding 250 sq. m per floor              |                                                                                                             |                                         |                                          |
| (ca) Single storey                             | —                                                                                                           | —                                       | a                                        |
| (cb) 2 storeys                                 | G                                                                                                           | 3                                       | a                                        |
| (cc) 3 or 4 storeys                            | G                                                                                                           | 1+3                                     | a                                        |
| (cd) 3 or 4 storeys (central air-conditioning) | AG                                                                                                          | 3                                       | a                                        |
| (ce) 5 storeys & above                         | AG                                                                                                          | 3                                       | a                                        |

NOTE:

- (i) Stretcher lift facilities to be provided for building above 4 storeys.
- (ii) Corridors and landings to be designed to accommodate stretcher and bed movement.
- (iii) Design shall provide for horizontal evacuation of bed patients for 50% bed occupancy.
- (iv) Laboratories and kitchen shall not have sleeping accommodation above them and shall form separate compartment from in-patient, treatment area, public area, staircases and lift discharge area.

| <i>Occupancy</i>                                                                            | <i>Extinguishing<br/>System<br/>Note 2</i>                                         | <i>Fire Alarm<br/>System<br/>Note 3</i> | <i>Emergency<br/>Lighting<br/>Note 4</i> |
|---------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------|-----------------------------------------|------------------------------------------|
| III. OTHER RESIDENTIAL                                                                      |                                                                                    |                                         |                                          |
| 1. HOTELS                                                                                   |                                                                                    |                                         |                                          |
| A. Open design balcony approach with open staircase with extended lobby or tower staircase. |                                                                                    |                                         |                                          |
| (a) Single storey                                                                           | —                                                                                  | —                                       | —                                        |
| 1. 20 rooms or less                                                                         | G                                                                                  | —                                       | a                                        |
| 2. More than 20 rooms                                                                       |                                                                                    |                                         |                                          |
| (b) 2 to 3 storeys                                                                          |                                                                                    |                                         |                                          |
| 1. 20 rooms or less                                                                         | —                                                                                  | —                                       | a                                        |
| 2. 21 to 50 rooms                                                                           | G                                                                                  | —                                       | a                                        |
| 3. More than 50 rooms                                                                       | G                                                                                  | 2                                       | b                                        |
| (c) 4 to 5 storeys                                                                          |                                                                                    |                                         |                                          |
| 1. 50 rooms or less                                                                         | G                                                                                  | 2                                       | b                                        |
| 2. More than 50 rooms                                                                       | G                                                                                  | 1+2                                     | b                                        |
| (d) 6 to 10 storeys                                                                         |                                                                                    |                                         |                                          |
| 1. 50 rooms or less                                                                         | G                                                                                  | 1+2                                     | b                                        |
| 2. More than 50 rooms                                                                       | AG                                                                                 | 2                                       | c                                        |
| (e) 11 storeys & above                                                                      | AG                                                                                 | 2                                       | c                                        |
| B. OTHER DESIGNS                                                                            |                                                                                    |                                         |                                          |
| (a) 10 rooms or less                                                                        | —                                                                                  | —                                       | a                                        |
| (b) 11 to 20 rooms                                                                          | G                                                                                  | 2                                       | a                                        |
| (c) 21 to 50 rooms                                                                          | G                                                                                  | 1+2                                     | a                                        |
| (d) 51 rooms & above:                                                                       |                                                                                    |                                         |                                          |
| 3 storeys & below                                                                           | G                                                                                  | —                                       | c                                        |
| 4 storeys & above                                                                           | AG                                                                                 | 2                                       | c                                        |
| (e) Exceeding 18 metres                                                                     | AG                                                                                 | 2                                       | c                                        |
| C. Hotels above shops or office occupancies                                                 | To be considered as part of overall risk but not less than required for A+B above. |                                         |                                          |
| 2. HOSTELS AND DORMITORIES                                                                  |                                                                                    |                                         |                                          |
| (a) (i) Single storey                                                                       | —                                                                                  | —                                       | —                                        |
| (ii) 2 to 3 storeys                                                                         | G                                                                                  | 2                                       | a                                        |
| (b) 4 to 5 storeys                                                                          |                                                                                    |                                         |                                          |
| (i) Less than 250 sq. m per floor area                                                      | G                                                                                  | 2                                       | a                                        |
| (ii) More than 250 sq. m per floor area                                                     | G                                                                                  | 1+2                                     | a                                        |
| (c) 6 to 10 storeys                                                                         |                                                                                    |                                         |                                          |
| (i) Less than 250 sq. m per floor area                                                      | G                                                                                  | 1+2                                     | a                                        |
| (ii) More than 250 sq. m per floor area                                                     | AG                                                                                 | 2                                       | b                                        |
| (d) 11 storeys & above                                                                      | AG                                                                                 | 2                                       | b                                        |

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 protections as required by the Fire Authority.

| Occupancy                                             | Extinguishing<br>System<br>Note 2 | Fire Alarm<br>System<br>Note 3                                                                                                                                                                                                                            | Emergency<br>Lighting<br>Note 4 |
|-------------------------------------------------------|-----------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------|
| <b>3. MODIFIED REQUIREMENTS FOR FLATS</b>             |                                   |                                                                                                                                                                                                                                                           |                                 |
| (a) Walk-up flats (5 storeys & below)                 | —                                 | —                                                                                                                                                                                                                                                         | —                               |
| (b) Open balcony approach                             |                                   |                                                                                                                                                                                                                                                           |                                 |
| (i) 6 storeys and above but less than 60 metres high  |                                   | Dry riser/down comer 45.5 cu. m overhead tank. Two units of 30m x 37 mm hose with control nozzle.<br><br>Two units of 9 kg ABC dry chemical fire extinguisher located at caretakers flat or fire point on ground floor as required by the Fire Authority. |                                 |
| (ii) Exceeding 60 metres                              |                                   | Wet riser, 2 units of 30m x 37mm hose with control nozzle. 2 units 9 kg ABC dry chemical fire extinguishers located at caretakers flat or fire point required by the Fire Authority. Fire lifts to be provided.                                           |                                 |
| (c) Internal staircase or core design                 |                                   |                                                                                                                                                                                                                                                           |                                 |
| (i) 6 storeys and above but less than 60 metres high  |                                   | As for (b)(i) and emergency lighting 'a' for corridor and staircase, fire lift if exceeding 30 metres.                                                                                                                                                    |                                 |
| (ii) Exceeding 60 metres                              |                                   | As for (b)(ii), hose reel, fire lift and emergency lighting.                                                                                                                                                                                              |                                 |
| (d) Maisonettes built on two or more levels           |                                   | As for (c)(i) or (ii) as applicable and to provide self-contained 'Residential type smoke detectors'.                                                                                                                                                     |                                 |
| (e) Central air-conditioning system                   |                                   |                                                                                                                                                                                                                                                           |                                 |
| (i) 3 storeys to 5 storeys                            | G                                 | —                                                                                                                                                                                                                                                         | a                               |
| (ii) 6 storeys to 10 storeys<br>(less than 30 metres) | G                                 | 2                                                                                                                                                                                                                                                         | c                               |
|                                                       |                                   | and fire lifts & self-contained 'Residential type smoke detectors' to be provided.                                                                                                                                                                        |                                 |
| (iii) 11 storeys & above                              | AG                                | 2                                                                                                                                                                                                                                                         | c                               |
|                                                       |                                   | and fire lifts, wet riser in accordance with general requirements.                                                                                                                                                                                        |                                 |
| <b>4. OFFICES (Total Floor Area)</b>                  |                                   |                                                                                                                                                                                                                                                           |                                 |
| (i) 4 storeys and below or less than 1,000 sq. m      | —                                 | —                                                                                                                                                                                                                                                         | —                               |
| (ii) 5 storeys and above or exceeding 1,000 sq. m     | G                                 | 2                                                                                                                                                                                                                                                         | a                               |
| (iii) Exceeding 18 metres but less than 10,000 sq. m  | G                                 | 1+2                                                                                                                                                                                                                                                       | c                               |
| (iv) Exceeding 30 metres or more 10,000 sq. m         | AG                                | 2                                                                                                                                                                                                                                                         | c                               |

| <i>Occupancy</i>                                                                                                                                                                                                     | <i>Extinguishing<br/>System<br/>Note 2</i> | <i>Fire Alarm<br/>System<br/>Note 3</i> | <i>Emergency Lighting<br/>Note 4</i> |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------|-----------------------------------------|--------------------------------------|
| <b>5. SHOP</b>                                                                                                                                                                                                       |                                            |                                         |                                      |
| (i) Floor area not exceeding 250 sq. m per floor built as separate compartments:<br>Building less than 4½ storeys or 15 metres<br>Combination of ground floor shop and/or residential and/or office on upper floors. | —                                          | —                                       | —                                    |
| (ii) Single storey                                                                                                                                                                                                   |                                            |                                         |                                      |
| (a) 750 sq. m or less                                                                                                                                                                                                | —                                          | —                                       | —                                    |
| (b) 751 – 1,000 sq. m                                                                                                                                                                                                | G                                          | 2                                       | a                                    |
| (c) 1,001 – 2,000 sq. m                                                                                                                                                                                              | G                                          | 1+2                                     | a                                    |
| (d) 2,001 sq. m & above                                                                                                                                                                                              | AG                                         | 2                                       | a                                    |
| (iii) Two storeys (Total Floor Area)                                                                                                                                                                                 |                                            |                                         |                                      |
| (a) 750 sq. m or less                                                                                                                                                                                                | —                                          | —                                       | a                                    |
| (b) 751 – 1,000 sq. m                                                                                                                                                                                                | G                                          | 2                                       | a                                    |
| (c) 1,001 – 2,000 sq. m                                                                                                                                                                                              | G                                          | 1+2                                     | a                                    |
| (d) 2,001 sq. m & above                                                                                                                                                                                              | AG                                         | 2                                       | c                                    |
| (iv) Three storeys and above (Total Floor Area)                                                                                                                                                                      |                                            |                                         |                                      |
| (a) 1,000 sq. m or less                                                                                                                                                                                              | G                                          | 2                                       | a                                    |
| (b) 1,001 – 3,000 sq. m                                                                                                                                                                                              | G                                          | 1+2                                     | a                                    |
| (c) 3,001 sq. m & above                                                                                                                                                                                              | AG                                         | 2                                       | c                                    |
| <b>6. FACTORY</b>                                                                                                                                                                                                    |                                            |                                         |                                      |
| (i) Single storey                                                                                                                                                                                                    |                                            |                                         |                                      |
| (a) 750 sq. m or less                                                                                                                                                                                                | —                                          | —                                       | —                                    |
| (b) 751 – 1,000 sq. m                                                                                                                                                                                                | G                                          | 2                                       | —                                    |
| (c) 1,001 – 2,000 sq. m                                                                                                                                                                                              | G                                          | 1+2                                     | —                                    |
| (d) 2,001 sq. m & above                                                                                                                                                                                              | AG                                         | 2                                       | —                                    |
| (ii) Open design (unenclosed)                                                                                                                                                                                        |                                            |                                         |                                      |
| (a) Steel or metal fabrication works, engineering or metal works or similar low risk establishment                                                                                                                   | —                                          | —                                       | —                                    |

| <i>Occupancy</i>                                                                                | <i>Extinguishing System</i> | <i>Fire Alarm System</i> | <i>Emergency Lighting</i> |
|-------------------------------------------------------------------------------------------------|-----------------------------|--------------------------|---------------------------|
|                                                                                                 | <i>Note 2</i>               | <i>Note 3</i>            | <i>Note 4</i>             |
| (b) Sawmill                                                                                     | GH                          | 2                        | —                         |
| (c) Steel mills                                                                                 | H                           | 2                        | —                         |
| (iii) Two storeys each floor built as separate compartment, single or terrace type construction |                             |                          |                           |
| (a) Each floor area of 500 sq. m or less                                                        | G                           | —                        | —                         |
| (b) Each floor area 501 – 750 sq. m                                                             | G                           | 2                        | <i>a</i>                  |
| (c) Each floor area exceeding 751 sq. m but less than 1,000 sq. m                               | G                           | 1+2                      | <i>a</i>                  |
| (d) Exceeding 1,000 sq. m per floor area                                                        | AG                          | 2                        | <i>a</i>                  |
| (iv) 3 storeys or over of terrace type construction                                             | —                           | —                        | —                         |
| (v) Flatted Factories, Block Development, Open Balcony Approach                                 |                             |                          |                           |
| (a) 2 storeys & above                                                                           |                             |                          |                           |
| 1. Less than 750 sq. m per compartment                                                          | G                           | 2                        | <i>a</i>                  |
| 2. 751 – 1,000 sq. m per compartment                                                            | G                           | 1+2                      | <i>a</i>                  |
| 3. 1,001 sq. m but less than 2,500 sq. m per compartment                                        | HG                          | 1+2                      | <i>c</i>                  |
| 4. Compartments exceeding 7,000 cu. m                                                           | AG                          | 2                        | <i>c</i>                  |
| (b) Three storeys to five storeys                                                               |                             |                          |                           |
| (i) With any compartment size less than 7,000 cu. m                                             | HG                          | 2                        | <i>c</i>                  |
| (ii) With any compartment size exceeding 7,000 cu. m                                            | AG                          | 2                        | <i>c</i>                  |
| (c) 6 storeys & above                                                                           | AG                          | 2                        | <i>c</i>                  |
| (vi) Special structures                                                                         |                             |                          |                           |
| (a) Factory complexes such as palm oil mill complex, palm oil refinery, sugar mill cement works | HG                          | 2                        | <i>c</i>                  |

| <i>Occupancy</i>        | <i>Extinguishing System</i> | <i>Fire Alarm System</i> | <i>Emergency Lighting</i> |
|-------------------------|-----------------------------|--------------------------|---------------------------|
|                         | <i>Note 2</i>               | <i>Note 3</i>            | <i>Note 4</i>             |
| (b) Wet processes       | G                           | 2                        | c                         |
| (c) Hazardous processes | A, B, C, D,<br>E, or F      | 2                        | a                         |

## NOTE:

1. Factories in operation after hours of darkness shall be required to provide emergency lighting as required by the Fire Authority.
2. Special risks or hazardous processes or storage shall be required to provide fire protection requirements as required by the Fire Authority.
3. The walls shall be returned in 100m solid masonry construction for not less than 1 metre between walls separating staircase and wall separating each unit along the balcony approach and not less than 0.5 metre along wall separating each unit and the external wall.

| <i>Occupancy</i>                                          | <i>Extinguishing System</i><br><i>Note 2</i> | <i>Fire Alarm System</i><br><i>Note 3</i> | <i>Emergency Lighting</i><br><i>Note 4</i> |
|-----------------------------------------------------------|----------------------------------------------|-------------------------------------------|--------------------------------------------|
| <b>7. PLACE OF ASSEMBLY</b>                               |                                              |                                           |                                            |
| (i) 500 sq. m or less or<br>500 persons or less           | —                                            | —                                         | —                                          |
| (ii) 501 – 1,000 sq. m or<br>501 – 1,000 persons          | G                                            | 2                                         | <i>a</i>                                   |
| (iii) 1,001 – 2,000 sq. m or<br>1,001 – 2,000 persons     | G                                            | 1+2                                       | <i>a</i>                                   |
| (iv) 2,001 sq. m & above or 2,001 persons<br>and above    | AG                                           | 2                                         | <i>a</i>                                   |
| Building with central air-conditioning                    |                                              |                                           |                                            |
| (i) 500 sq. m or less or<br>500 persons or less           | —                                            | —                                         | <i>a</i>                                   |
| (ii) 501sq. m – 1,000 sq. m or<br>501 – 1,000 persons     | G                                            | 1+2                                       | <i>a</i>                                   |
| (iii) More than 1,000 sq. m or<br>1,000 persons and above | AG                                           | 2                                         | <i>c</i>                                   |

**NOTE:**

Where it forms part of another occupancy, the Fire Protection requirements to be determined based on the highest Fire Risk category occupancies.

| <i>Occupancy</i>                                                                                                   | <i>Extinguishing System</i><br><i>Note 2</i> | <i>Fire Alarm System</i><br><i>Note 3</i> | <i>Emergency Lighting</i><br><i>Note 4</i> |
|--------------------------------------------------------------------------------------------------------------------|----------------------------------------------|-------------------------------------------|--------------------------------------------|
| <b>8. STORAGE AND GENERAL</b>                                                                                      |                                              |                                           |                                            |
| (i) Special Structures,<br>Open car parks<br>above ground                                                          |                                              |                                           |                                            |
| (a) 4 storeys & below                                                                                              | G                                            | 2                                         | a                                          |
| (b) 5 storeys & above                                                                                              | HG                                           | 2                                         | a                                          |
| (c) Automated multi-level car parks                                                                                | —                                            | 2                                         | a                                          |
| (ii) Underground parking structures, the<br>ceilings of which are less than 0.6 m<br>above outside gradient travel | AG                                           | 2                                         | a                                          |
| (iii) Storage incidental to industries<br>processes materials                                                      |                                              |                                           |                                            |
| (a) Classified non-combustible such as<br>clay & bleaching earth                                                   | —                                            | —                                         | —                                          |
| (b) Steel rods, steel plates                                                                                       | —                                            | —                                         | —                                          |
| (c) Gypsum, etc.                                                                                                   | —                                            | —                                         | —                                          |
| (iv) General                                                                                                       |                                              |                                           |                                            |
| (a) Single storey                                                                                                  |                                              |                                           |                                            |
| 1. Timber yard (open sided)                                                                                        | GH                                           | 2                                         | —                                          |
| 2. 250 sq. m or less                                                                                               | —                                            | —                                         | —                                          |
| 3. 251 – 500 sq. m                                                                                                 | G                                            | 2                                         | —                                          |
| 4. 1,400 – 7,000 cu. m                                                                                             | GH                                           | 1+2                                       | a                                          |
| 5. More than 7,000 cu. m                                                                                           | AG                                           | 2                                         | a                                          |
| (b) Two storeys and above (Total area)                                                                             |                                              |                                           |                                            |
| 1. 500 sq. m or less                                                                                               | G                                            | 2                                         | —                                          |
| 2. 501 – 1,000 sq. m                                                                                               | HG                                           | 1+2                                       | a                                          |
| 3. 1,001 sq. m and above                                                                                           | AG                                           | 2                                         | a                                          |

## NOTE:

Where more than 50% of the total perimeter wall is open in which at least 2 of the longest perimeter wall side shall have not less than 50% opening shall be deemed to be an open structure.



NOTE:

The hazardous areas and processes within any building referred to in Group VI 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) Transformers and substations.
- (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 types of fixed extinguishing system, as follows—

- A — Automatic Sprinklers.
- B — Water Spray System.
- C — High Expansion Foam System.
- D — Carbon Dioxide System.
- E — Approved Halogenated Extinguishing System.
- F — Other Automatic Extinguishing System.
- G — Hose Reel.
- H — Hydrant System.

NOTE 3:

The figures in the third column of this Schedule refer to the types of fire alarm, as follows—

- 1. Automatic Fire Detectors System.
- 2. Manual Electrical Fire Alarm System.
- 3. Signal Indicator Alarm System.
- 4. Manual Alarm System.

NOTE 4:

Types of Emergency Illumination—

- (a) Signal point units.
- (b) Central battery.
- (c) Generators.

In all cases the duration of emergency illumination in the event of failure of normal supply shall not be less than 1 hour.

NOTE 5:

Measurements of heights shall be taken from the level of the highest point of fire appliance access.

## WATER STORAGE CAPACITY

(Bylaw 240(1))

|    |                                                                                                            | <i>Water Storage<br/>Required</i>     |
|----|------------------------------------------------------------------------------------------------------------|---------------------------------------|
| 1. | MINIMUM QUANTITY OF WATER STORAGE<br>REQUIRED FOR HOSE REEL AND FIRE HYDRANT<br>INSTALLATIONS IN BUILDINGS |                                       |
|    | Floor Area of the largest floor:                                                                           |                                       |
|    | Not exceeding 232.25 sq. m ... ..                                                                          | 9,100 litres                          |
|    | Over 232.25 sq. m but not exceeding 464.5<br>sq. m ... ..                                                  | 18,200 litres                         |
|    | Over 464.5 sq. m but not exceeding 929 sq. m                                                               | 27,300 litres                         |
|    | Over 929 sq. m ... ..                                                                                      | 36,400 litres                         |
| 2. | MINIMUM QUANTITY OF WATER STORAGE<br>REQUIRED FOR HOSE REEL SYSTEMS ONLY                                   |                                       |
|    | Minimum storage required for the first hose reel                                                           | 2,275 litres                          |
|    | For each additional hose reel ... ..                                                                       | 1,137.5 litres                        |
|    |                                                                                                            | up to a<br>maximum of<br>9,100 litres |
| 3. | MINIMUM QUANTITY OF WATER STORAGE<br>REQUIRED FOR WET RISER AND HYDRANT<br>INSTALLATIONS                   |                                       |
|    | (a) Break tank capacity ... ..                                                                             | 11,375 litres                         |
|    | (b) Main tank capacity:                                                                                    |                                       |
|    | For 445 litres per min. in-coming automatic<br>supply                                                      | 45,500 litres                         |
|    | For 1,365 litres per min. in-coming automatic<br>supply                                                    | 11,375 litres                         |

FORM A  
APPLICATION AND CERTIFICATION FORM FOR  
AUTOMATIC  
SPRINKLER INSTALLATION

(Issued under bylaw 238(3))

..... 20.....

To: ..... Council,  
.....

I (name of submitting person) .....  
I/C No: ..... of .....

apply for approval to \*install/supervise the installation of an automatic  
sprinkler \*installation/s, \*extension/s which I have designed in accordance  
with the current F.O.C Rules for Automatic Sprinklers Installation for—

Name of Owner .....  
Address of protected premises .....  
.....

| <i>Building<br/>Protected</i> | <i>Hazard Class</i> | <i>Installation<br/>Reference No.</i> | <i>Number of<br/>Sprinkler<br/>Heads</i> |
|-------------------------------|---------------------|---------------------------------------|------------------------------------------|
|                               |                     |                                       |                                          |

The proposed \*installation/s, \*extension/s are as detailed in the schedule  
above and are in accordance with the following drawings:

| <i>Drawing Ref. No.</i> | <i>Description of Drawing</i> |
|-------------------------|-------------------------------|
|                         |                               |

The other relevant particulars of the \*installation/s, extension/s are as given below—

#### EXTRA HIGH HAZARD AREAS

.....  
 High piled storage (if any), (type, height and location) .....  
 The maximum number of sprinklers in any one separate risk (as defined in the F.O.C Rules for Automatic Sprinklers Installation) is .....  
 (building ..... Installation Ref. No: .....)

#### WATER SUPPLY

The following water supply \*will be/has been provided—

1. Water Works Main Diameter ..... millimetres.
2. Elevated Private Reservoir Capacity ..... cubic metres.
3. Low Level Storage Tank/s Capacity ..... cubic metres.
4. Pump/s Motive power .....  
 Nominal rating .....  
 Dm<sup>3</sup>/minute ..... Bars .....  
 Drawing water from .....
5. Pressure Tank Total capacity ..... cubic metres  
 Ratio-air to water .....  
 Required air pressure (taking into account any losses referred to below)  
 ..... Bars

.....  
*Signature of submitting  
 person*

Name .....  
Address .....  
.....

---

FOR OFFICIAL USE ONLY

Application received on .....  
Application approved on .....

.....  
*Signature of approving person*

---

CERTIFICATION ON COMPLETION — To be completed and returned to the local authority by the person who submitted the application in the first instance.

I certify that the supplies detailed above have been tested in accordance with the procedures laid down in F.O.C Rules for Automatic Sprinkler Installation and at the date of test \*met/did not meet the minimum requirements for the particular Hazard Classes. Particulars are as set out in the attached Test Data Sheet.

The pressure losses under the blow conditions for the respective Hazard Clauses in the pipework and fitting, back pressure valves and alarm valves, between the pump or pressure tank and the various installation pressure gauge (Gauge “C”) are calculated to be as follows—

| <i>Installation Reference No.</i> | <i>Pressure losses in ** Bars</i> |
|-----------------------------------|-----------------------------------|
| No:                               |                                   |
| No:                               |                                   |
| No:                               |                                   |

Date .....

.....  
*Signature of submitting person*

---

\*\* Including pipework, fittings and back pressure and alarm valves.  
\* Delete which is not applicable.

## WATER SUPPLIES TEST DATA SHEET

(To accompany Form A when applying for approval of completed automatic sprinkler installation)

Name of Owner .....

Premises Protected .....

Date of Completion of Tests .....

## TEST APPARATUS—

The test apparatus used in connection with the undermentioned tests conform with the requirements for proving of water supplies set out in F.O.C. Rules for Automatic Sprinkler Installations.

“Standard Test Orifices” for Periodic check Test of Ordinary Hazard Systems.

Standard Test Orifices having the following “K” factors (determined in accordance with the procedures outlined in paragraph A1102 Standard (iii) of the abovementioned F.O.C. Rules) have been installed at the test positions at each set of control valves.

TEST ..... Installation Ref. No. .... “K” Factor .....

| Installations<br>Reference No. | Water<br>Supply | Hazard<br>Class | Tests Requirements          |                  | Installation gauge reading (bars) |                                          |                                                          | *Static loss (bars)<br>between<br>installation gauge<br>and highest<br>sprinkler in<br>particular Hard<br>Class area |
|--------------------------------|-----------------|-----------------|-----------------------------|------------------|-----------------------------------|------------------------------------------|----------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------|
|                                |                 |                 | Flow<br>dm <sup>3</sup> /mm | Pressure<br>Bars | (a)<br>Under test<br>conditions   | (b)<br>With drain<br>valve fully<br>open | (c)<br>After test<br>completed<br>(standing<br>pressure) |                                                                                                                      |
|                                |                 |                 |                             |                  |                                   |                                          |                                                          |                                                                                                                      |
|                                |                 |                 |                             |                  |                                   |                                          |                                                          |                                                                                                                      |
|                                |                 |                 |                             |                  |                                   |                                          |                                                          |                                                                                                                      |
|                                |                 |                 |                             |                  |                                   |                                          |                                                          |                                                                                                                      |

\*Where an installation comprises more than one Hazard Class, the loss to be stated shall be that between the installation gauge and the highest sprinkler in the particular Hazard Class.

.....  
Signature of submitting person

Date .....

FORM B  
APPLICATION AND CERTIFICATION FORM FOR FIXED  
INSTALLATIONS AND FIRE ALARM SYSTEMS

(Issued under bylaws 238(3) and 239)

..... 20 .....

To: ..... Council,  
.....

I (name of submitting person) .....

apply for approval to \*install/supervise the installation of the \*fixed installations/fire alarm systems as described hereunder and as shown on the drawings submitted with this application which I have designed in accordance with the current F.O.C. Rules/BSCP/British Standard No:.....

Name of Owner .....

Address of premises of installation/s .....

Type and nature of \*installation/s:      Fire Alarm System  
                                                            Wet Riser  
                                                            Dry Riser  
                                                            Hose Reel  
                                                            Other Fixed Installation

Buildings Protected .....

Number of Risers (Wet/Dry\*) .....

Number of pumping inlets .....

Number of landing valves .....

Number of Fire Alarm call points .....

Number of indicator panels .....

Location .....

Fire Station link to .....

Secondary Power Supply .....

Water Supplies: The following waters supplies have been provided:

Number of Fire Hydrants ..... Position/s ..... Minimum  
Flow/  $\text{dm}^3$  pm

Waterworks Main/Rising main ..... Diameter .....  
mm

Private Reservoir (Type) ..... Capacity .....  
 $\text{m}^3$

Rate of Discharge/replenishment by waterworks mains  
.....

Pump Motive power ..... Nominal Rating .....  $\text{dm}^3/\text{hr}$  .....

Bars ..... Drawing water from .....

Comments (if any) and departures from the BSCP/FOC/British  
Standards/

CIFS Regulations .....

.....  
*Signature of submitting  
person*

FOR OFFICIAL USE ONLY:

Date Received .....

Date Approved .....

I certify that the Fixed Installations/Fire Alarm System as  
described in the form of Application and as shown on the  
approved drawings have been completed under my personal  
supervision and have been tested to my satisfaction and such I  
would apply for your endorsement for issue of a completion  
certificate.

.....  
*Signature of submitting person*

Date .....

---

*\*Delete which is not applicable.*



## *SCHEDULE K*

### SCHEDULE SHOWING MINIMUM NUMBER OF EXIT DOOR WAY FROM A ROOM AND REQUIRED MINIMUM WIDTH THEREOF

(Issued under bylaw 161(3) and (5))

| Capacity of<br>Room                                             | Minimum<br>number of exit<br>doors | Minimum total width of each |               | Minimum width of each |               |
|-----------------------------------------------------------------|------------------------------------|-----------------------------|---------------|-----------------------|---------------|
|                                                                 |                                    | a. Exit Door                | b. Exit Route | a. Exit Door          | b. Exit Route |
| 1. Less than 25                                                 | 1                                  | —                           | —             | 1½ units              | 1½ units      |
| 2. 26 – 100                                                     | 1                                  | —                           | —             | 1½ units              | 2 units       |
| 3. 101 – 200                                                    | 2                                  | 3 units                     | 3½ units      | 1½ units              | 1½ units      |
| 4. 201 – 300                                                    | 2                                  | 4½ units                    | 4½ units      | 2 units               | 2 units       |
| 5. 301 – 500                                                    | 2                                  | 5½ units                    | 5½ units      | 2 units               | 2 units       |
| 6. 501 – 750                                                    | 3                                  | 8 units                     | 8 units       | 2 units               | 2 units       |
| 7. 751 – 1000                                                   | 4                                  | 11 units                    | 11 units      | 2 units               | 2 units       |
| 8. 1001 – 1250                                                  | 5                                  | 13½ units                   | 13½ units     | 2½ units              | 2½ units      |
| 9. 1251 – 1500                                                  | 6                                  | 16 units                    | 16 units      | 2½ units              | 2½ units      |
| 10. Over 1501                                                   | *                                  | **                          |               |                       |               |
| * 7 or such greater number as may be required.                  |                                    |                             |               |                       |               |
| ** to be calculated at the rate of ½ unit width per 50 persons. |                                    |                             |               |                       |               |

## *FIFTH SCHEDULE*

### MEETINGS OF THE BOARD

#### **Meetings**

1.—(1) All meetings of the Board shall be presided over by the Chairman or in his absence, by any member appointed for that purpose by the Chairman.

(2) The quorum of any meeting of the Board shall be seven including the Chairman.

(3) Decisions of the Board shall be made by a majority of votes of members.

(4) If for any question to be determined by the Board there is an equality of votes, the Chairman shall have a casting vote.

(5) Subject to subparagraphs (1), (2), (3), (4) and paragraph 2, the Board shall regulate its own procedures.

(6) Meetings of the Board may be held physically or through any digital platform or combination thereof.

#### **Frequency of meeting**

2.—(1) Except with the written approval of the Minister, the Board shall hold at least two meetings in every calendar year.

(2) Meetings of the Board shall be called by the Chairman and notice of such meetings shall be issued and signed by the Secretary or any person specifically authorized by the Secretary.

#### **Board may invite others to meetings**

3. The Board may request any person to attend any meeting or deliberation of the Board for the purpose of advising it on any matter under discussion, but such person so attending shall have no right to vote at the said meeting or deliberation.

#### **Minutes**

4.—(1) The Board shall cause minutes of all of its meetings to be maintained and kept in a proper form.

(2) Any minutes of meeting of the Board shall, if duly signed by the Chairman or by the member presiding in his absence, as the case may be, be admissible in evidence in all legal proceedings without further proof and every meeting of the Board in respect of the proceedings of which minutes have been so made, shall be deemed to have been duly convened and held and all members thereat to have been duly qualified to act.

(3) Members are entitled to copies of all minutes of meetings but shall not, without the permission of the Chairman, transmit, distribute or permit access thereto, to any person who is not a member of the Board.

(4) The minutes of meetings of the Board, its common seal and all its statutory and accounting records shall be kept at the principal office of the Board.

#### **Circular resolutions**

5. A resolution of the Board may be passed without a meeting of the Board being convened if the resolution is—

- (a) circulated in writing to all members together with all documents and other information necessary or desirable, and with sufficient time, for the members to make an informed decision on the subject matter of the resolution;
- (b) approved in writing by a majority of the members, which would have constituted a quorum at a meeting of the Board; and
- (c) of a type that the Board has determined may be passed in accordance with this paragraph.

**Principal office**

6. The Board shall have a principal office and no change in the principal office may be effected without the prior written approval of the Minister.

**Disclosure of interests**

7. A member of the Board whether directly or indirectly, by himself or his spouse or children, having any interest in any company or undertaking with, which the Board proposes to make any contract, or whether directly or indirectly having any interest in any such contract, or in any matter under discussion by the Board shall disclose to the Board the fact of his interest and the nature thereof, and such disclosure shall be recorded in the minutes of the meetings of the Board and, unless specifically authorized thereto by the Chairman, such member shall take no part in any deliberation or decision of the Board relating to the contract or matter.

*[Ins. Cap. A224]*

## LAWS OF SARAWAK

## Chapter 8

## BUILDINGS ORDINANCE, 1994

## LIST OF AMENDMENTS

| Amending Law       |     | Short Title                                                    | In force from                     |
|--------------------|-----|----------------------------------------------------------------|-----------------------------------|
| Cap. A52           | ... | Building (Amendment) Ordinance, 1994                           | 1.11.1998                         |
| Swk. L.N. 71/2001  | ... | Buildings (Amendment of First and Third Schedules) Order, 2001 | 1.11.2000                         |
| Swk. L.N. 95/2001  | ... | Buildings (Amendment) Bylaws, 2001                             | 1.1.2001/<br>1.1.2002             |
| Swk. L.N. 163/2004 | ... | Buildings, (Amendmen of First and Third Schedules) Order, 2004 | 1.1.2005                          |
| Swk. L.N. 39/2007  | ... | Buildings (Amendment) Bylaws, 2007                             | 1.10.1994                         |
| Cap. A224          | ... | Buildings (Amendment) Ordinance, 2025                          | 15.5.2026<br>(Swk. L.N. 162/2026) |