SINGAPORE CIVIL DEFENCE FORCE
Fire Safety Bureau

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Please quote our ref. no . in all future correspondences

Our Ref: FSB 37/86 Pt 1 & FSB37/86

DID: 8386453
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4th Dec 2000

Registrar, Board of Architects (BOA)
Registrar, Professional Engineers Board (PEB)
President, Singapore Institute of Architects (SIA)
President, Institution of Engineers, Singapore (IES)
President, Association of Consulting Engineers, Singapore (ACES)

Dear Sirs

FIRE CODE REVIEW COMMITTEE-
1st RELEASE OF CHANGES/AMENDMENTS TO FIRE CODE 1997

The Fire Code Review Committee, which comprises representatives from *SIA, IES, ACES, REDAS, SISV, HDB, JTC, NTU, NUS, BCA, LTA, IFE, PSA, PSB and SCDF, met monthly as from 7th Dec 1999 to review the Fire Code 1997.

2 FSB is pleased to forward to you the 1st release of changes/amendments to the Fire Code, which have been deliberated and agreed upon by the Fire Code Review Committee. A reprint of the relevant pages of the Fire Code incorporating the changes/amendments, which are highlighted by a black vertical line, are given in Annex A. The changes/amendments to the Fire Code shall take effect as from 2nd Jan 2001.

3 Please convey the contents of this circular and Annex A to members of your Institution/Association/Board/Organisation. You may reprint or photocopy the relevant pages incorporating the changes/amendments to the Fire Code at Annex A for dissemination to your members. The circular is also available in our website: http://www.scdf.gov.sg

Teo Lim Teck
Secretary
FSB Standing Committee
for Commissioner
Singapore Civil Defence Force

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cc
CEO, BCA
All members of FSB Standing Committee
All members of Fire Code Review Committee
President, REDAS
President, IFE
President, SISV
CEO, HDB
Group President, PSA
CEO, JTC
CE, LTA (Attn: Mr Mohinder Singh)
CE, PSB (Attn: Mr Lau Keong Ong/Ms Tan Chiew Wan)

*SIA – Singapore Institute of Architects
IES – Institution of Engineers, Singapore
ACES – Association of Consulting Engineers, Singapore
REDAS – Real Estate Developers' Association of Singapore
SISV – Singapore Institute of Surveyors & Valuers
HDB – Housing & Development Board
JTC – Jurong Town Corporation
NTU – Nanyang Technological University
NUS – National University of Singapore
BCA – Building Control Authority
LTA – Land Transport Authority
IFE – Institution of Fire Engineers
PSA – PSA Corporation Limited
PSB – Singapore Productivity and Standards Board
SCDF – Singapore Civil Defence Force

1st BATCH OF CHANGES/AMENDMENTS TO FIRE CODE 1997

CONTENTS

1.2.17 A dead-end refer to a situation within a common area, normally a corridor or lift lobby spaces, where exit is only possible from one end, with no possible escape from the other end. The maximum length of such dead-end spaces shall not exceed 15m or 20m (sprinklered) as stipulated in Table 2.2A, column (vi) see diagram 1.2.17.

Dead-end

Amended under Supplement 4/2000 dated 4 Dec 2000

1.2.18 The shortest distance from a point in a room or space, measured within the external enclosure walls of the room or space to the relevant exits, ignoring internal walls, partitions and fittings other than the enclosure walls of exit passageways or exit staircases.

Direct distance

1.2.19 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, regardless of whether the door is constructed of one or more leaves.

Door

1.2.20 A device which will allow a door held open by it to close automatically in the event of each or anyone of the following:

(a) Detection of smoke by automatic apparatus suitable in nature, quality and location, and

(b) Operation of a hand operated switch fitted in a suitable position, and

(c) Failure of electricity supply to the device, apparatus or switch, and

(d) Operation of the fire alarm system if any.

Electro-magnetic or electro-mechanical device susceptible to smoke

1.2.21 Element of Structure

(a) A member forming part of the structural frame of a building or any other beam or column but not a member forming part of a roof structure only,

Element of structure

1.2.25(B)	A door which provides access to a room or space or installed across the escape path leading to an exit. Exit access door shall comply with all the reuirements of an exit door and need not have fire resistance rating, unless it is specified.	Exit Access Door New subclause added under supplement 5/2000 dated 4 Dec 2000
1.2.26	A horizontal extension of a vertical exit viz exit staircase or a passage leading from a courtyard to an open exterior space, complying with the requirements of Cl.3.8 for protected shafts in respect of fire resistance ratings for enclosure walls, floors, ceilings and doors, that serves as a required exit. Exit passageway shall be required to comply with the provisions of Cl. 2.3.2.	Exit passageway
1.2.27	A staircase which has its enclosure constructed of non-combustible material having a fire resistance of not less than the minimum period required by Cl. 3.3, for Elements of Structure for the part of the building in which it is situated.	Exit staircase
1.2.28	Material fixed to the outside face of an external wall for weather protection or decorative purpose.	External cladding
1.2.29	An exit staircase which serves as a required exit shall be located outside the building and open to the outdoor air, and enclosed by parapet walls or railing only.	External exit staircase Amended under supplement 4/2000 dated 4 Dec 2000
1.2.30	An exit passageway open to the outdoor air, that serves as a required exit. External Exit Passageway shall comply with the provisions of Cl. 2.3.2(c).	External exit passageway
1.2.31	An outer wall or vertical enclosure, including a part of the roof pitched at an angle of 70 degrees or more to the horizontal if that part of the roof adjoins a space within the building to which persons have access.	External wall (or side of a building)
1.2.32	The minimum period of time during which an element of structure or building element may be expected to function satisfactorily while subjected to a standard fire test.	Fire resistance
1.2.33	A seal provided to close an imperfection of fit or any joint between elements, components or construction in a building so as to prevent and restrict penetration of smoke and flame through that imperfection or joint.	Fire stop
1.2.34	A smoke-stop lobby which is adjacent to a fire lift and designated for	Fire-fighting

use by the fire fighting team during an emergency. The size of the lobby shall not be smaller than 6 sq m and not greater than 10 sq m. The clear width of the lobby shall not be less than 2000 mm.

lobby

1.2.35 For air-conditioning and mechanical ventilation systems:

Flexible joints and flexible connections

(a) Flexible joints means connections between ducts and equipment normally provided to isolate vibration and to allow thermal movement.

(b) Flexible connections means flexible sections of ducts provided to connect the extremity of ventilation ductwork to terminal units, extract units and grills.

1.2.36 A storey of the building with habitable room. A habitable room means any room not less than 6.5 m^2 in area and does not include any bathroom, water-closet, open verandah, terrace, garage and lift motor room.

Habitable floor
Amended under Supplement 4/2000 dated 4 Dec 2000

1.2.37 The habitable height is the height measured from the lowest level of fire engine accessway or hardstanding to the finished floor level of the highest habitable floor.

Habitable height
Amended under Supplement 4/2000 dated 4 Dec 2000

1.2.38 The height of building or (where relevant) of part of a building as described in the Code, means the height of such building or part, measured from the average 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 the top of the walls or of the parapet (if any), whichever is the higher.

Height of building

1.2.39 Any occupancy in which the contents or activities include one or more of the following:

High hazard occupancy

(a) materials that will flame up by themselves without the presence of any fire source below the ignition temperature of 200ºC,

unless otherwise permitted under this Code as in the case of hotel bedrooms (Cl.2.7.4), residential apartments or maisonettes (Cl.2.4.7) and exit to Area of Refuge (Cl. 2.2.6(f)).

1.2.60 Where more than one exit is required from a building or portion thereof, such exits shall be remotely located from each other and shall be arranged and constructed to minimise the possibility that more than one can be blocked by any one fire or other emergency condition.

Two-way escape (Remoteness of exits)

(a) If two exits or exit access doors are required, they shall be placed at a distance from one another equal to or not less than half the length of the maximum overall diagonal dimension of the building or area to be served, measured in a straight line between the nearest edges of the exit doors or exit access doors (see diagram 1.2.60(a)(i) to (v)). If the distance between the 2 exits or exit access doors is less than half the length of the maximum overall diagonal dimension of the building or area to be served, it shall be considered as a one-way escape arrangement.

Two-way escape

(b) In buildings protected throughout by an approved automatic sprinkler system which complies with the requirements of chapter 6, the minimum separation distance between two exits or exit access doors measured in accordance with sub-clause 1.2.60(a) shall be not less than one third the length of the maximum overall diagonal dimension of the building or area to be served.

Reduction in exit separation

(c) Where exit staircases, exit passageways or exit ramps are inter-connected by a corridor, exit separation shall be permitted to be measured along the line of travel within the exit access corridor. The exit access corridor connecting the exit staircases, exit passageways or exit ramps shall be protected by minimum one hour fire rated enclosures. Doors opening into this corridor shall have minimum half hour fire resistance rating (see diagram 1.2.60(c)).

Exit separation measured along exit access corridor

(d) (i) A one-way travel or "common path" exists if a floor space is arranged or provided with partitioning works such that occupants within that space are able to travel in only one direction to reach any of the exits or to reach the splitting point where they have the choice of two or more routes of travel to remote exits.

One-way travel

New sub-clause added under Supplement 4/2000 dated 4 Dec 2000

(ii) The travel distance from the most remote point to the splitting point shall not exceed the permissible one-way travel distance allowed in Table 2.2A. At the splitting point, the angle of divergence between any two alternative routes shall not be less than 90 degrees in order that the routes originating from the splitting point can be considered as two-way travel.

(iii) The aggregate travel distances of the one-way travel from the most remote point to the splitting point and the continuous two-way travel from the splitting point to the nearest exit shall not exceed the permissible two-way travel distance allowed in Table 2.2A.

1.2.61 In relation to a side or external wall of a building means: Unprotected area

(a) A window, door or other opening, and

(b) Any part of the external wall which has less than the relevant fire resistance required in Cl.3.5, and

(c) Any part of the external wall which has combustible material more than 1 mm thick attached or applied to its external face whether for cladding or any other purpose.

1.2.62 An exit staircase or exit ramp serving as required exit from one or more storeys above or below ground level. Vertical exit

1.2.63 For the purpose of internal surfaces, includes: Wall surface

(a) The surface of glazing, and

(b) Any part of ceiling which slopes at an angle of 70 degrees or more to the horizontal, but excluding:

(i) door frames and unglazed parts of doors, and

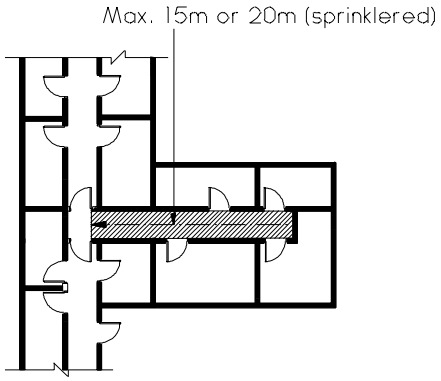
(ii) window frames and frames in which glazing is fitted, and

(iii) architraves, cover moulds, picture rails, skirtings and similar narrow members, and

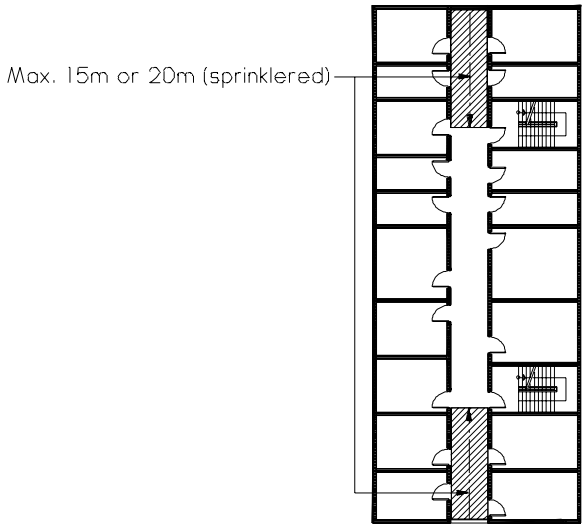
(iv) fitted furniture.

Diagram 1.2.17

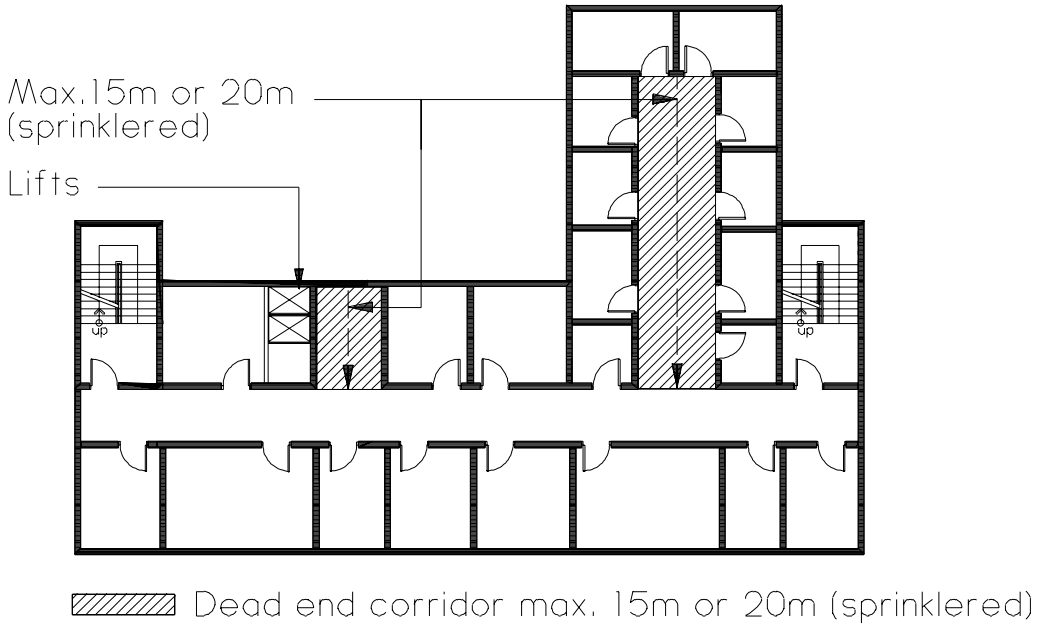
DEAD-END CORRIDORS



a. "T" junction with main corridor



b. Continuation past stairway



c. Example of two common types of dead-end corridors. Both dead-end pockets serve as traps because travel into them does not lead to an exit; the egress path must be reversed to reach an exit staircase

2.2.6 (a) In the case of a floor area designed with minimum two exits, the maximum travel distance as given in Table 2.2A shall be applicable. The maximum travel distance starting from the most remote point in any occupied space to the nearest exit, shall not exceed the limits specified in Table 2.2A, and

(b) In a large floor area sub-divided into rooms, corridors and so forth, the travel distance requirements of the foregoing paragraphs of this clause shall be deemed to be satisfied if the `travel distance' does not exceed two-third of the maximum travel distance permitted under Table 2.2A, and

(c) For the purpose of this clause, the most remote point from which the travel distance is measured shall be taken as being 400 mm from the enclosure walls of the room or space, and

(d) In the case of a hotel bedroom, travel distance shall be determined based on the provisions under Cl. 2.7.4 for Exit Requirements for Hotels, and

(e) In the case of a residential apartment or maisonette, the travel distance shall be determined based on the provisions under Cl. 2.4.7 for Exit Requirements for Residential Occupancy, and

(f) Where Area of Refuge is provided in lieu of required exits, travel distance shall be measured to the exit door at the corridor leading to the Area of Refuge, and

Amended under Supplement 4/2000 dated 4 Dec 2000

2.2.13 (a) an external exit passageway or external corridor. The openings for natural lighting and ventilation to the corridor shall be so located that they face and open upon: External approach

(i) the external space; or

(ii) a street, service road or other public space which is open to the sky; or

(iii) an air-well which opens vertically to the sky and having a min. width of 6m and a superficial plan area of not less than 93m², except that for residential occupancy, the external corridors for smoke free approach shall comply with the requirements of cl.2.4.8 and 2.4.9, and in the case of hotel bedrooms being served by external corridors, such corridors shall comply with cl.2.7.2;

(b) a lobby that is separated from the adjoining areas of the building by a wall having a fire resistance of at least 1 hour. The exit access door shall have fire resistance of at least half an hour fitted with automatic self-closing device conforming to the requirements of Cl.3.9.2. The design of a smoke-stop lobby must be such as not to impede movement of occupants through the escape route. The floor area of a smoke-stop lobby shall be not less than 3m² and if a smoke-stop lobby also serves as a fire fighting lobby, the floor area shall be not less than 6 m² and not more than 10m² and the minimum width along the narrow side shall be not less than 2m wide. The floor shall be graded from the lift door towards the lobby door with a fall not exceeding 1 in 200. Smoke-stop lobby

A smoke stop lobby, including fire-fighting lobby, which acts as buffer space for entry into the protected staircase and use by fire fighters during emergency, shall be maintained as common property. **Amended under Supplement 4/2000 dated 4 Dec 2000**

(iii) The clear width of the exit doors leading to the safe exterior open space shall be adequate to receive the occupant load in the 1st storey circulation space and the total number of people discharging from the internal exit staircases.

(d) The minimum width and capacity of exit staircases shall be as specified in Table 2.2A, and such staircases shall comply with the following:

(i) Winders shall not be permitted in any building other than for access staircases of residential buildings and in such cases, there shall be not more than 1 winder per 90 degree turn.

Winders Amended under Supplement 4/2000 dated

4 Dec 2000

Note : Landings, Risers and treads under cl.2.3.3(d)(i) and cl.2.3.3(d)(iii) respectively have been deleted

(ii) Where circular/geometric staircases are used as exit staircases, the width of treads measured at the narrower end shall be not less than 100 mm in residential buildings and 125 mm in other buildings and at a distance of half metre from the narrower end shall be not less than 225 mm in residential buildings and 250 mm in other buildings.

Treads for circular/ geometric staircases **Amended under Supplement 4/2000 dated 4 Dec 2000**

(e) Where the width of the exit staircase exceeds 2000 mm, handrails shall be provided in accordance with the requirements of Cl. 2.2.8.

Handrails Amended under Supplement 4/2000 dated

4 Dec 2000

Note: Previous cl.2.3.3(e)(i) has been deleted

(f) All exit staircases shall be ventilated by fixed openings in the external walls, such openings being of area not less than 10 per cent of the floor area per floor of the staircase, or mechanically ventilated to comply with the requirements in Chapter 7. Exit staircase and occupancy area shall not share the same airwell or void for lighting and ventilation.

Ventilation

(g) In any building of which the habitable height exceeds 24 m, any internal exit staircases without provision for natural ventilation shall be pressurised to comply with the requirements in Chapter 7. In a building comprising more than four basement storeys, the exit staircase connecting to the fire fighting lobby shall be pressurised.

Pressurisation

2.4.10 The provisions of Cl.2.3.3(a)(ii) and (b)(ii) that there shall be no unprotected openings within 3m horizontally or vertically below ventilation openings of exit staircases may not be applicable in the case of exit staircases for residential apartments or maisonettes provided: Protection of staircases

(a) the exit staircases are cross-ventilated and maintained under smoke-free condition at all times; and

(b) unprotected openings of the apartment or maisonette units are not facing or ventilating into the exit staircase enclosures as shown in diagram 2.4.10.

2.4.11 Doors of residential apartments or maisonettes opening into external corridors need not have fire resistance rating. Residential doors opening into external corridors.

2.4.12 An attic in buildings under purpose group I and II may be constructed of timber boardings on timber joists, provided it is protected to achieve the fire resistance rating required of the elements of structure of the building or compartment. Attic floor

Amended under Supplement 4/2000 dated 4 Dec 2000

2.5 HEALTH CARE OCCUPANCY

2.5.1 The provisions stated herein shall apply to Health Care Occupancies which may be identified under the following categories: General

2.7.1 (c) Internal corridors shall be naturally ventilated with fixed openings in an external wall, such ventilation openings being not less than 15 per cent of the floor area of the internal corridor, and internal corridors which cannot be naturally ventilated shall be pressurised to comply with the requirements in chapter 7.

(d) Other rooms or spaces which open into or form part of the bedroom corridor which may prejudice the means of escape provision shall be required to be compartmented to the same extent as the bedrooms.

Amended under Supplement 4/2000 dated 4 Dec 2000

2.7.2 Hotel bedrooms with access through an external corridor shall comply with the requirements as follows: External corridor

(a) Hotel bedrooms shall be separated from the external corridor by a wall having fire resistance of at least 1 hour, except that ventilation openings of non-combustible construction may be fixed at or above a level of 1.1 m, measured from the finished floor level of the external corridor to the sill height of the opening, and

(b) Doors opening into the external corridor shall not be required to have fire resistance rating, and

(c) External corridors shall conform to the requirements of external exit passageway for minimum width, changes in floor level, roof protection and enclosure on the open side.

2.7.3 (a) One exit access door only shall be required from the hotel bedroom or suite provided that the distance measured from the most remote point in the bedroom or suite to the door shall not exceed 15 m, and Number of exit doors from hotel bedrooms

2.7.5 (c) the smoke barriers shall be sited at suitable locations across the corridor to create multiple sections, with each having free and direct access to an exit or exit staircase, exit passageway or exit ramp.

(d) smoke check doors excluding glass doors, shall be provided with clear glass vision panels having at least 25% of the surface area of each door leaf; Vision panel

(e) smoke check doors shall be self-closing, swinging type and may be double-swing but shall close the opening completely with only such clearance as is reasonably necessary for proper operation. The doors shall be closely fitted around their edges and the bottom clearance gap between such doors and the floor shall not exceed 4mm;

(f) smoke check doors shall normally be in the closed position. However, they may be left open if they are arranged to close automatically by an approved electro-magnetic or electro-mechanical device which can be activated by the presence of smoke and/or the building fire alarm system.

2.8 ASSEMBLY OCCUPANCY

2.8.1 Assembly Occupancy include all buildings or portions of buildings used for gathering together 50 persons or more for such purpose as deliberation, worship, entertainment, eating, drinking, amusement or awaiting transportation. General **Amended under Supplement 4/2000 dated 4 Dec 2000**

Assembly Occupancies include but are not limited to :

2.8.3 (e) flooring for the surface of steps and ramps forming the aisles or gangways shall be finished using non-slip materials, and

(f) illumination of steps shall be such that each step is clearly visible when the general lighting is switched off.

(g) Seats for cinema, theatre, auditorium, etc

Combustible seats

The construction of combustible seats in cinema, theatre, auditorium, etc shall comply with BS5852 in respect of the following testing standard :

New sub-clause added under Supplement 4/2000 dated 4 Dec 2000

(i) Smouldering Ignition Source 0;
(ii) Flaming Ignition Source 1; and
(iii) Crib Ignition Source 5.

2.8.4 The number and capacity of exits from a theatre, cinema or concert hall shall be provided within its own compartment without having to take into account exits provided for its adjoining parts of the same building in which it is housed. Exception may be permitted where the occupancy load does not exceed 200, in which case at least half the capacity of exits must be provided within the compartment.

Exits from a theatre, cinema or a concert hall

2.8.5 Where a building or part of a building is designed as a cineplex to house multiple mini- cinemas, the means of escape to be provided may be shared by all the mini-cinemas. Each cineplex shall be treated as a single big cinema for the purpose of determining the exit requirements under sub-clause 2.8.4.

2.9 WORKERS' DORMITORIES

2.9.1 Dormitories include buildings or spaces in buildings where group sleeping accommodation is provided for workers under joint occupancy and single management, with or without meals, but without individual cooking facilities. The phrase "without individual cooking facilities" refers to the absence of cooking equipment in any room or unit of a dormitory.

Dormitories

(i) Type of Occupancy	(ii) Max Travel Distance (m) (One-way travel)		(iii) Max Travel Distance (m) (Two-way Escape)		(iv) Capacity No of persons per unit of width (x)				(v) Min Width (m)		(vi) Max Dead End (m)	
	Unsprin-klered	Sprin-klered	Unsprin-klered	Sprin-klered	Door opening (c), (d) & (e)		(f) Stair-cases	(d) Ramps Corridors Exits Passage ways	Stairs	Corri-dors	Corridors	
					To outdoors at ground level	Other exit & corridor doors					Unsprin-klered	Sprin-klered
High hazard	10	20	20	35	50	40	30	50	1	1	15	20
Industrial buildings (factories, workshops, godown/warehouse)	15	25	30	60	100	80	60	100	1	1	15	20
Dormitories, hostels	15	25	30	60	50	40	30	50	1	1	15	20
Shops	15	25	45	60	100	80	60	100	1	1	15	20
Offices	15	30	45	75	100	80	60	100	1	1	15	20
Places of public resort & carparks	15	25	45	60	100	80	60	100	1(h)	1(h)	15	20
Schools & educational buildings	15	25	45	60	100	80	60	100	1	$1^{1}/_{2}$(a)	15	20
Hospitals	15	25	30	45	30	30	15	30	1	2(b)	15	20
Hotels, boarding houses (k)	15	20	30	45	50	40	30	50	1	1	15	20
Blocks of flats/maisonettes (k)	15(g) 20(j)	30(g) 40(j)	30 45(j)	60	50	40	30	50	1(i)	1	15	20
Detached, semi-detached & terrace house, including townhouses	NR	NR	NR	NR	NR	NR	NR	NR	0.9	1	NR	NR

3.2.5(j) (ii) Dormitory bedrooms and other rooms or spaces which open into or form part of the dormitory bedroom corridor shall be separated from the corridor to comply with cl.2.9.3 and cl.2.9.4; and

(iii) Kitchen shall be enclosed with minimum 1-hour fire rated compartment wall, including ½-hour fire rated door. Kitchen can be located within each floor, but shall not be within the dormitory bedroom.

(k) A motor vehicle workshop shall be separated from any other part of the same building by compartment walls and floors having fire resistance of not less than 2 hours, and if located in a basement storey of a building, shall be separated from any other part of the same building by compartment walls and floors having fire resistance of not less than 4 hours.

Separation of motor vehicle workshop

(l) Areas in which spray painting or other allied processes are performed or carried out, shall be separated from other parts of the same building by compartment walls and floors having fire resistance of not less than 2 hours, except for spray painting booths, if the Relevant Authority is satisfied that such booths do not represent a hazard.

Separation of spray painting room

(m) Coldroom

(i) Where the enclosure to a coldroom is constructed partly or wholly with combustible materials, a separate outer layer of non-combustible construction, having minimum 2-hour fire resistance rating, shall be provided to compartmentalise the coldroom enclosure from other areas. The door to such an enclosure shall have minimum 1-hour fire resistance rating. However, the provision of fire resistance door is not required if the coldroom is located in a sprinkler protected building.

Coldroom **Amended under Supplement 4/2000 dated 4 Dec 2000**

3.2.5(m) (ii) Provision of the fire resisting outer layer enclosure to the coldroom(s) would not be required if -

Amended under Supplement 4/98 dated 4 Dec 2000

* The coldroom(s) is located within a room space or part of a building that is separated from other parts of the building by compartment walls/floor having the necessary fire resistance rating required under Clause 3.2.5 or Clause 3.3 and has an aggregate cubicle extent (measured internally) of not more than 30 cubic metre, and storage materials in the coldroom(s) shall not contain any highly flammable chemicals, or

* The coldroom(s) is located in a kitchen compartment (with or without 'open flame' cooking appliances) in an eating establishment, provided the aggregate floor area of the coldroom(s) is not exceeding $20m^2$ and the kitchen is compartmentalised from other parts of the building by compartment walls and floor having minimum 1 hour fire resistance, irrespective of the relaxation allowed under Cl.3.2.5(f)(v).

(n) For non-sprinklered buildings, if the area of the store room exceeds $10m^2$, it shall be compartmented from the other parts of the same building by compartment walls and floors having fire resistance of not less than 1 hour. No fire compartmentation is required for a store room which is housed within a sprinklered building.

Store room Amended under Supplement 6/99 dated 31 Dec 99

(o) Areas of Special Hazard

(i) Boiler rooms, transformer rooms, generator rooms, storage areas of materials that are highly combustible or flammable, and any other area of special high risk shall be separated from other parts of the building by compartment walls and floors having fire resistance of not less than 4 hours provided that transformer rooms which do not utilise flammable liquid shall be required to be separated from other parts of the building by compartment walls and compartment floors having fire resistance of not less than 2 hours, and

Areas of special high risk in a building

(ii) Rooms housing transformer containing flammable liquid and generator rooms shall be located against an external wall.

(p) Fire compartmentation between individual tenancy units within a terraced or flatted factory or warehouse building shall be provided. The entire enclosure of each of these units shall be fire compartmented with walls and floors of minimum one-hour fire resistance rating.

Tenancy unit New subclause added under Supplement 6/99 dated 31 Dec 99

3.5.7 For high and low parts of different compartments of a building Vertical

abutting each other, either one of the following requirements shall be complied with to prevent spread of fire from the roof close to and lower than the external of the higher part: fire spread

(a) the roof over the lower part of the building shall be fire rated in accordance with the element of structure for minimum 1 hour for a distance of 5m measured horizontally from the external wall of the higher part of building; or

(b) the external wall of the higher part of the building overlooking the roof below shall have the necessary fire resistance rating in accordance with the element of structures for minimum 1 hour for a vertical height of not less than 9m measured from the roof of the lower part of the building.

3.6

SEPARATING WALLS

3.6.1 Every separating wall shall: Requirements of separating walls

(a) Form a complete barrier in the same continuous vertical plane through the full height between the buildings it separates, including roofs and basements and shall be imperforate except for provisions of openings permitted under Cl. 3.6.2, and

(b) Have the appropriate fire resistance to comply with the requirements of Cl.3.3, and

(c) Be constructed of non-combustible materials, together with any beam and column which form part of the wall and any structure which it carries.

(d) Not include glass fire resisting walls.

(e) Exception

Subclause (a) need not be applied to wall between car porches of buildings under purpose group I. For terrace-housing situation, this exception will not apply if the carporch is spanning from one side boundary to the other.

New subclause added under Supplement 4/2000 dated 4 Dec 2000

3.7.3 Where a compartment wall or compartment floor forms a Junction

junction with any structure comprising any other compartment wall, or any external wall, separating wall or structure enclosing a protected shaft, such structures shall be bonded together at the junctions or the junctions shall be fire-stopped to comply with the requirements of Cl. 3.12.

with other structures

3.7.4 Where a compartment wall forms a junction with a roof, such compartment wall shall be carried up to form a close joint with the underside of the roof and shall be properly fire-stopped or shall be carried up above the level of the roof covering and the junction between such compartment wall and roof shall be properly fire-stopped so as not to render ineffective the resistance of such compartment wall to the effects of the spread of fire.

Compartment wall - roof junctions

3.7.5 No combustible material shall be built into, carried through or carried across the ends of any compartment wall or compartment floor or carried over the top of any compartment wall in such a manner as to render ineffective the resistance of such wall or floor to the effects of the spread of fire.

Prohibition of combustible materials

3.7.6 Every compartment wall or compartment floor shall be constructed of non-combustible materials, unless permitted by the Relevant Authority.

Non-combustibility of compartment walls or floors

3.8 PROTECTED SHAFTS

3.8.1 A protected shaft shall not be used for any purpose additional to those given as defined under Cl. 1.2.47.

All services such as, pipe/duct installation should not be located inside protected staircase. Likewise, no washroom is allowed to be located inside protected staircase.

Purpose of protected **Shaft Amended under Supplement 4/2000 dated 4 Dec 2000**

3.8.2 Every protected shaft shall be required to - Requirements of protected shaft

(a) Form a complete barrier to fire between the different compartments which the shaft connects, and

(b) Have the appropriate fire resistance to comply with the requirements of Cl. 3.3, and

(c) Be constructed of non-combustible material (together with any beam or column which forms part of the enclosure and any structure which carries it).

3.8.3 A protected shaft shall have no openings in its enclosure, except - Openings in protected shaft

(a) In the case of any part of the enclosure which is formed by a separating wall, any opening which complies with the requirements of Cl. 3.6 for separating walls, or

(b) In the case of any part of the enclosure which is formed by a compartment wall or a compartment floor, any opening which complies with the requirements of Cl. 3.7 for compartment wall or compartment floor, or

(c) In the case of any part of the enclosure which is formed by the protecting structure -

(i) a door which has the appropriate fire resistance to comply with the requirements of Cl. 3.4 for test of fire resistance, or otherwise permitted by provision of Cl. 3.8.6, or

(ii) the passage of a pipe, excluding protecting structure to exit staircase and exit passageway, or

Amended under Supplement 4/2000 dated 4 Dec 2000

4.2.2 (b) Access openings shall be posted with either a red or orange triangle (minimum 150mm on each side) on the external side of the wall and with wordings "Fire Fighting Access - Do Not Obstruct" of at least 50mm height on the internal side. Such posting of signs shall not be applicable to residential buildings under Purpose Group I and II.

Signage

(c) Access openings shall be not less than 850mm wide by 1000mm high with sill height of not more than 1100 mm and head height not less than 1800 mm above the inside floor level.

Size
Amended under Supplement 4/2000 dated 4 Dec 2000

(d) Number and position of access openings for buildings other than residential:

(i) On each storey of a building or compartment, other than the 1st storey and up to habitable height not exceeding 60m, there shall be one access opening to every 620m² of floor area or part thereof provided that there shall be at least two access openings on each storey level of the building or compartment.

Buildings other than residential

(ii) In a building where there are compartments or spaces of less than 620m² of floor area which are not accessible from one another, there shall be one access opening for every of such spaces.

Access opening to compartment or spaces less than 620m²