DARWIN AREA BUILDING MANUAL

Adopted 23rd May 1975

Darwin Reconstruction Commission

THE NORTHERN TERRITORY OF AUSTRALIA

Regulations 1977, No. 24*

Regulations under the *Building Ordinance*

I, JOHN ARMSTRONG ENGLAND, the Administrator of the Northern Territory of Australia, having received the advice of the Executive Council, hereby make the following regulations under the *Building Ordinance*.

Dated this 22nd day of December, 1977.

J. A. ENGLAND
Administrator

AMENDMENTS OF THE BUILDING REGULATIONS

1. Regulations 2 and 3 of the Building Regulations are repealed and the following regulations substituted —

Incorporation of Building Manual

"2. The Building Manual 1975 (Darwin Area) set out in the Fifth Schedule, being the building manual approved on 22 May 1975, published on 23 May 1975 and amended on 11 September 1975, 11 February 1976, 16 March 1976 and 19 October 1977 by the Darwin Reconstruction Commission established under the *Darwin Reconstruction Act* 1975, and as amended by the Sixth Schedule, is incorporated with and read as part of these regulations.

Scope of regulations

"3.(1) Subject to this regulation the standards and requirements set out in The Building Manual 1978 shall apply from 1 January 1978 to all plans and specifications lodged with and applications made to the Board on or after that date and to all building work carried out after that date.

"(2) An approval given by any legally competent authority before 1 January 1978 or by the Board under sub-regulation (3) shall continue with full effect as though that approval was an approval given by the Board under the Building Regulations as amended by these regulations.

"(3) An application received by the Board before 1 January 1978 shall be dealt with as though the amendments to these regulations that came into force on 1 January 1978 had not come into force and the *Darwin Reconstruction Act* 1975 had not expired.

"(4) Subject to Regulation 10, where an existing building is to be modified, altered or added to, the standards and requirements of these regulations shall apply only to the modification, alteration or additions to the existing building.

"(5) These regulations shall not apply to buildings used by builders during the construction of any building or by contractors carrying out works for any public body or corporation and readily removable on completion of such building or works.".

Illegal use of building

2. Regulation 12 is amended by omitting "or the Building Manual".

Information to accompany application

3. Regulation 23 of the Building Regulations is amended by omitting from paragraph (c) of sub-regulation (1), "and any determination of the Board published in the Building Manual".

*Notified in the *Northern Territory Government Gazette* on 22 December, 1977.

Price 50 cents

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Information to accompany permit to pull down or remove

4. Regulation 24 is amended by omitting the words from and including "require and, in the case" to the end of the regulation and substituting "require".

Examination and approval plans

5. Regulation 25 of the Building Regulations is amended:

(a) by omitting from sub-regulation (1) "and any determinations of the Board applicable thereto which have been published in the Building Manual"; and

(b) by omitting from sub-regulation (2) "or the requirements of any determination made by the Board which are applicable thereto and have been published in the Building Manual".

Submission of preliminary plans

6. Regulation 26 of the Building Regulations is amended by omitting "and of any determinations of the Board published in the Building Manual".

Repeal of Regulations 29, 32, 33 and 34

7. Regulations 29, 32, 33 and 34 of the Building Regulations are repealed.

DARWIN RECONSTRUCTION COMMISSION

BUILDING MANUAL – DARWIN AREA – MAY 1975 EDITION

GROUP 1 – PRELIMINARY
Part 1 – Preliminary

1.1 (1) This building manual may be cited as "The Building Manual 1975" (Darwin Area) and shall come into operation on the 23rd May 1975.

(2) This Building Manual shall apply to the whole of the 'Darwin Area' as defined by the Darwin Reconstruction Act 1975 and is published in accordance with Section 15 (5) of the Act.

1.2 This manual is divided into Parts and Groups as follows:

GROUP 1 – PRELIMINARY.
PART 1 – Preliminary

GROUP II – GENERAL PROVISIONS.
PART 2 – Reserved
PART 3 – Reserved
PART 4 – Reserved
PART 5 – Reserved
PART 6 – Classification of Buildings
PART 7 – United Buildings
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PART 9 – Reserved
PART 10 – Materials and Workmanship
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PART 13 – Reserved

GROUP IV – BUILDINGS IN RELATION TO PUBLIC ROADS.
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PART 16 – Fire-resisting Construction of Buildings
PART 17 – Construction Required except in Fire Zones
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PART 20 – Fire Resistance of Structural Members
PART 21 – Fire Doors, Smoke Doors, Fire Windows, and Fire Shutters – Construction Requirements
PART 22 – Location and Protection of Openings
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1.2 *(Cont)*

PART 24 – Means of Egress
PART 25 – Chimneys, Flues, Fireplaces, Stoves and Similar Features
PART 26 – Fire Protection in Class IX Buildings
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PART 29 – Stresses and Load Factors
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PART 32 – Foundations
PART 33 – Footings not on Piling or Caissons
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PART 35 – Walls – General Requirements
PART 36 – Walling of Masonry
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PART 45 – Disposal of Garbage and other Household Wastes.
PART 46 – Provision of Bathrooms, Closets, Kitchens and Laundries
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PART 48 – Termite and Rodent Prevention
PART 49 – Room sizes and Heights
PART 50 – Light and Ventilation
PART 51 – Special Health and amenity Requirements for Particular Rooms
PART 52 – Noise Transmission

GROUP VIII– ANCILLARY PROVISIONS
PART 53 – Special Requirements for Certain Buildings and Components
PART 54 – Awnings and Other Attachments
PART 55 – General Services and Equipment
PART 56 – Alteration, Restoration and Repair.
PART 57 – Ruinous and Dangerous Buildings
PART 58 – Temporary Structures

1.3 (1) In this Manual except in so far as the context or subject-matter otherwise indicates or requires –

SIXTH SCHEDULE

Building Regulations

Reg. 2

Reference to Building Manual	Omit	Insert
Group I Part 1 Clause 1.1	the whole clause	1.1 (1) This building manual may be cited as "The Building Manual 1978" and shall come into operation on 1 January 1978. (2) This building manual shall apply in building areas constituted by or under the Building Ordinance.
Group V Part 27 Clause 27.1	the whole clause	"27.1 For the purpose of this Part — "fire main" means a WET or DRY service pipe connected to a supply and installed within a building or building site for fire-fighting purposes. "hydrant" means a fire hydrant or plug connected to a fire main or to a water main in a public road, as the case requires."
Clause 27.2(1)		After paragraph (a) "or; (b) in class VII Buildings the normal water reticulation permanently attached to a hose and reel is satisfactory subject to the requirements of sub-sub-paragraphs 27.2(3)(a) and (b) and also sub-sub-paragraph 27.3(2)(a)."
Clause 27.2(4)(b)	paragraph (b)	"(b) all required hydrants are accessible and fitted with an outlet of British Instantaneous design complying with British Standard 336."
Clause 27.4(7)	sub-clause (7)	"(7) Every required hydrant shall be — (a) fitted with an outlet of British Instantaneous design complying with British Standard 336. (b) installed in a position that is accessible to Fire Brigade personnel, such as a fire isolated stairway, fire isolated passageway or fire isolated ramp. (c) be so positioned as not to obstruct the path of travel required under clause 24.23(1)."
Group VI Part 30 Clause 30.1(1)(b)	"except that"	"except that within 40 kilometres of Darwin Post Office, the area more particularly described in the notice declaring it to be a building area made on 9 December 1977 and notified in the *Northern Territory Government Gazette* on 14 December 1977, the following provisions also apply:"
Group VIII Part 53 Clause 53.12 (5)(b)	paragraph (b)	"(b) Rooms to be used as a store for inflammable liquids shall be designed so that all spilled liquid will be contained within that room."
Group VIII Part 55 Clause 55.7		After sub-clause (4) — "(5) Ducted air handling systems installed in special purpose enclosures such as computer rooms, operating theatres and the like, shall be in accordance with the provisions of Australian Standard 1668."

FIFTH SCHEDULE

Building Regulations

Reg. 2

THE BUILDING MANUAL 1978

Formerly Darwin Area Building Manual

Approved on 22 May 1975 and published on 23 May 1975 by the Darwin Reconstruction Commission and amended on 11 September 1975, 11 February 1976, 16 March 1976 and 19 October 1977.

1.3(1) *(Cont)* "alteration", in relation to building, includes an addition or an extension to a building;

"airlock" means a separate enclosure surrounded by partitions extending from the floor to the ceiling of the airlock;

"approved" means approved by the Darwin Reconstruction Commission;

"area" in relation to a building means the superficial area of a horizontal section made at the point of greatest surface inclusive of the external walls and of the portions of any party wall as belongs to the building together with any roofed balconies, verandahs and the like;

"assembly building" means a building designed, constructed, or adapted for the assembly of persons for –

(a) civic, political, educational, transit, religious, social, or recreational purposes, or

(b) entertainment or amusement;

"Australian Standard" means the current edition of a publication including an Australian Interim Standard, published by the Standards Association of Australia which contains rules which relate to any matter to which this Manual relates recommended or adopted by the Standards Association of Australia;

"automatic" –

(a) applied to a fire door, smoke door, or other member required to prevent or restrict the spread of fire or smoke through an opening, means designed to close by the operation of an approved heat-actuated or smoke-actuated device; and

(b) applied to a smoke-and-heat vent, means designed to open by the operation of an approved heat-actuated device;

"awning" includes every screen, shade, covering or other structure, except a sunblind, constructed for the purpose of shade or shelter and supported by cantilevers, brackets, projected supports, posts, columns, stanchions and the like;

"basement" means that portion of a building of which the top of the floor is below the adjoining finished ground level for not less than 40 percent of its area and the distance from the underside of the ceiling to the highest adjoining finished ground level is less than the distance from this level to the top of the floor;

"base structure" means the structure between the level of the lowest floor and the footings, which transmits the loads of the building to the footings;

"Chief Fire Officer" is the person appointed to that position under the Fire Brigades Ordinance;

"class of occupancy" of a building means the classification of the building as to use, in accordance with Part 6;

1.3.(1) *(Cont)*

"closet" means a compartment containing one or more closet pans;

"closet pan" means a sanitary fitment not connected to a water supply and sewerage system;

"combustible" –

(a) applied to a material, means combustible in accordance with Australian Standard A.30 "Fire Tests on Building Materials and Structures"; and

(b) applied to construction or a part of a building, means constructed wholly or in part of materials that are combustible as referred to in paragraph (a);

"commission" means the Darwin Reconstruction Commission;

"common dining room" means a dining room situated in a building and intended for use in common by the residents of the building;

"construct" includes "erect";

"curtain wall" means a non-loadbearing external wall that is not a panel wall;

"dead load" in relation to a building means the actual weight of all permanent structural and finishing work including partition walls contained in the building;

"dimensions" referred to hereinafter may be converted to Preferred Dimensions as set out in Section 8 of SAA MH 1–1972 Metric Conversion in Building and Construction;

"dividing fence" means a fence erected on or near boundary between two adjoining parcels of land;

"dwelling" means any building or portion of a building used or intended, adapted or designed to be used for living purposes as a self-contained unit;

"E.B.S." means the Experimental Building Station of the Department of Housing and Construction;

"exit" means an exit referred to in clause 24.4;

"finished ground level" means the level of the finished surface of the ground after the building has been completed and shall be as approved by the Commission;

"fire-isolated passageway" means a corridor, hallway, or the like, providing egress to or from fire-isolated stairway or fire-isolated ramp or to a road or open space, and conforming with clause 24.9;

"fire-isolated ramp" means a ramp within a fire-resisting enclosure, providing egress from a storey or space in the nature of a storey and conforming with clause 24.10;

"fire-isolated stairway" means a stairway within a fire-restricting shaft that complies with the relevant provisions of Part 16;

1.3.(1) *(Cont)*

"fire-resistance rating" means a fire-resistance rating as determined in the Standard Fire Test;

"fire-resisting", applied to a structural member or other part of a building, means having the fire-resistance rating required for that structural member or other part;

"fire-resisting construction" means one of the types of construction of a building referred to in Part 16;

"fire wall" means an internal wall that divides a storey of building into sections to resist the spread of fire;

"fire-zone", means a secondary fire-zone;

"flat" means a room or suite of rooms designed, constructed, or adapted as a separate domicile; in a building containing two or more such domiciles or as a single domicile in a building otherwise of Class V, VI, VII, VIII or IX;

"floor area" means –

(a) with respect to a storey – the gross area of that storey measured over the enclosing walls, and such portions of the party walls as belong to that building; and

(b) with respect to a room – the gross area of the room measured within the finished surfaces of the walls, and including the area occupied by any cupboards or other built-in furniture fixtures or fittings;

"footing" means the part of the construction by which the loads of the building are transferred from the base structure to the foundation;

"foundation" means the ground which supports the building, and upon which the footings of a building are constructed;

"frontage" means the boundary line between a site and the street upon which it abuts, and street alignment has the same meaning;

"habitable room", means a room (other than a bathroom, laundry, water closet or the like) that is designed, constructed or adapted for the activities normally associated with domestic living, and for this purpose –

(a) includes a bedroom, living room, lounge room, music room, television room, kitchen, dining room, sewing room, study, playroom, sunroom and the like; and

(b) excludes in addition to bathrooms, laundries, water closets, and the like, such rooms or spaces as food storage pantries, walk-in wardrobes, corridors, hallways, lobbies, photographic darkrooms, clothes drying rooms and other spaces of a specialised nature occupied neither frequently nor for extended periods;

"height" –

(i) in relation to a building means the measurement from the top of the lowest part of the ground storey floor to the level of the top of the gutter, eaves or flat roof;

1.3.(1) *(Cont)*

(ii) in relation to a room means the height measured from the top of the floor to the underside of the ceiling;

"house" means any building used or intended, adapted or designed to be used as one separate dwelling;

"institutional building" means a building designed, constructed, or adapted as a clinic, convalescent home, hospital, infirmary, nursing home, sanatorium, asylum, pre-school centre, home or institute for orphans, poor, aged, sick, or physically or mentally handicapped persons, or similar institution;

"kiosk" means a stall or apartment enclosed by walls, which the public does not enter, and which is used for the sale or distribution of goods or services;

"laundry" means a room designed, constructed or adapted primarily for the washing of clothes or other laundering purposes;

"length of wall" in relation to requirements for the thickness of a wall means the distance between the nearer faces of cross walls, external walls, party walls or buttresses bounded into that wall and constructed in accordance with this Manual;

"live load" means all load, including wind load, other than dead load;

"loadbearing" wall construction applied to a building means that type of construction in which loadbearing walls are designed as the principal means of transmitting downwards throughout the height of the building its dead and live loads;

"masonry" means stone, brick, terra-cotta-block, concrete-block, or other similar building unit, or a combination thereof, assembled together unit by unit to form a wall, pier, chimney, or other part of a building;

"measurement of distance from boundary" means the distance measured horizontally from the nearest point of the boundary to the outermost projection from the exterior wall;

"mezzanine" means that the space within a room which is situated between –

(a) an intermediate floor constructed within the room; and

(b) the floor level, ceiling, or roof above, as the case may be; and in which the intermediate floor does not extend across full area of the room;

"non-combustible" –

(a) applied to a material, means non-combustible in accordance with Australian Standard A.30 "Fire Tests on Building Materials and Structures"; and

(b) applied to construction or a part of a building, means constructed wholly of materials that are non-combustible as referred to in paragraph (a);

1.3.(1) *(Cont)*

"occupation" means a section of a building held by one occupant and containing within that section only one class of occupancy;

"open deck parking station" means a parking station in which all parts of the parking storeys are cross-ventilated by means of permanent openings in not fewer than two opposite or approximately opposite sides, the openings in each case being not smaller than half the vertical area of the side concerned;

"open space" means a space on the allotment, open to the sky and connecting directly with a public road;

"panel wall" means a non-loadbearing external wall, in frame or similar construction, that is wholly supported at each storey;

"pantry" means a room or space for the storage of food stuffs having a floor area of at least $2m^2$;

"parapet" means that portion of any wall which is carried up above the line of junction with a roof or gutter;

"partition wall" means –

(a) a non-loadbearing internal wall that does not extend beyond one storey of a building;

or

(b) a non-loadbearing member resembling such a wall, as the case requires;

"party structure" means any wall or floor required to have a fire-resistance rating and used for the purpose of dividing buildings or storeys into separate occupations;

"practising Structural Engineer" means an engineer with qualifications in Civil or Structural Engineering which can be shown to be acceptable to the Institution of Engineers Australia for the grade of corporate member, and who is actively engaged in structural design and supervision of building construction;

"pre-school centre" means a building, other than a school, designed, constructed, or adapted for the pre-school care or training of not fewer than six children;

"private garage" means a garage which accommodates not more than three vehicles;

"public corridor", "public hallway", or the like, means a corridor hallway or the like which –

(a) serves as a means of egress from two or more sole occupancy units to a required stairway or other required exit from the storey concerned; or

(b) is required by this Manual to be provided as a means of egress from any part of a storey to such a stairway or exit;

"public garage" means a garage which is not a private garage and is not designed, constructed or adopted for the servicing of vehicles other than washing, cleaning or polishing;

1.3.(1) *(Cont)*

"required" means required by or under this Manual;

"rise" in storeys of a building means the number of storeys above the ground, calculated in accordance with the rules set out in clause 17.1;

"road alignment" has the same meaning as street alignment;

"sanitary conveniences" means toilet rooms, closets, water closets and urinals;

"sanitary facility" means toilet rooms, closets, water closets, and urinals, kitchen, laundry, bathroom or shower room;

"school" includes a university, agricultural college, teachers' training college, school of mines, theological college or similar establishment designed, constructed, or adapted for tertiary education;

"self-closing", applied to a door or window, means equipped with an approved device designed to bring the door or window automatically to the fully closed and latched position after each manual opening;

"service station" includes garages which are designed, constructed or adapted for the servicing of vehicles other than washing, cleaning or polishing and excluding private garages;

"sewerage system" means a septic tank system or a public sewerage system;

"shaft" means the space or passage surrounded by walls and other parts of a building bounding a well or a vertical shute, duct or similar passage, but not a chimney or like part of a building intended for the discharge of hot products of combustion;

"shopfront" includes the window frame and glass, doors and door frame, and the wall between the head of the frames and the underside of the lintel or awning over the shopfront;

"site" means the allotment of land on which a building stands or is to be erected;

"sole occupancy unit" means –

(a) a flat;

(b) a room or suite of rooms in a Class III building designed, constructed or adapted to include sleeping facilities; or

(c) any portion of a class V, VI, VII, VIII or IX building, including a room or suite of rooms, designed, constructed or adapted for use in separate occupation by one or more persons;

"solid", applied to a wall, means without cavities, vertical cores or holes, or other voids, except those included within its individual masonry units;

"sprinkler system" means a system of water sprinklers within a building set to discharge automatically at a pre-determined temperature;

1.3.(1) *(Cont)*

"stairway" includes the treads and risers of a flight of stairs and the landings between flights;

"Standard Fire Tests" means the Fire-resistance Test of Structures set out in Australian Standard A.30 "Fire Tests on Building Materials and Structures";

"storey" means that space within a building which is situated between one floor level and the floor level next above, or if there is no floor above, the ceiling or roof above, but does not include –

(a) such a space in which the only use for which the space is designed, constructed, or adapted is for the accommodation of –
  (i) lift shafts, stairways, or meter rooms; or
  (ii) bathrooms, shower rooms, laundries, water closets, or other sanitary compartments; or
  (iii) storerooms in Class I buildings; or
  (iv) not more than three vehicles; or
(b) a mezzanine;

"street" means any street, road or lane, footway, square, court, alley or right-of-way;

"street alignment" means the line between any site boundary and the prescribed distance for the building setback;

"structural member" means a part of the structure of a building, and includes a footing, column, pier, wall, curtain wall, panel wall, spandrel, parapet, partition wall, shaft, floor, roof, ceiling, stair, landing, ramp or balcony, and any supporting part incorporated therewith;

"sunblind" means a screen attached to the wall of a building or suspended from an awning and having no support from the ground other than that wall or awning and extended or capable of being extended from the wall or awning for the purpose of shade, or rolled up on a roller fixed to the wall or awning;

"temporary structure" means a building which is not necessarily constructed within the requirements of this Manual and for which a permit may be issued for a restricted period of use, not exceeding two years;

"tropical cyclone area" means that part of the Northern Territory defined by AS 1170 Part 2; Rule 6.3 (an area up to 50 km inland from the coast north of Latitude 27°);

"vertical opening" means an opening in a floor between storeys of a building including openings for stairs, lifts, and air wells, but not including openings for pipes, heating or ventilating ducts or electrical conducts;

"walls" include –

(a) "external walls", being the outer walls of a building, not being party structures or common walls;

1.3.(1) *(Cont)*

(b) "common walls" being those walls common to adjoining buildings which are to party structures; and

(c) "internal walls" being those walls of a building which are not external walls, common walls or party structures.

Descriptions.

(2) For the purposes of this Manual –

(a) garages are described as follows:

(i) All garages of Class I buildings, and such single-storey garages of other buildings as accommodate not more than three vehicles, are "private garages";

(ii) All garages that are not private garages and that are not designed, constructed, or adapted for the servicing of vehicles, other than washing, cleaning or polishing, are "public garages"; and

(iii) All garages that are not private garages and that are designed, constructed, or adapted for the servicing of vehicles, other than washing, cleaning or polishing only, are "service stations";

(3) In this Manual, except insofar as the context or subject matter otherwise indicates or requires;

(a) language referring to a building in being shall be construed, with all necessary changes, for a proposed building, so that among other things –

(i) a reference to the owner of a building shall be construed as a reference to the person who, if the proposed building were then completed, would be its owner;

(ii) a reference to a structural member of certain materials shall be construed as a reference to a proposed structural member which, if erected as proposed, would be of those materials; and

(iii) a reference to the purpose of a building shall be construed as a reference to the purpose for which a proposed building is to be used on completion;

(b) a reference to a "building" shall be construed as a reference to an "entire building" or a "portion of a building", as the case requires;

(c) where a word is defined in this Manual, every derivative of that word has a meaning corresponding with that definition;

(d) abbreviations and symbols for units and multiples and sub-multiples of units have the same meaning as they have ascribed to them in Australian Standard AS 1155 "Metric Units for Use in the Construction Industry".

1.4 Reserved

1.5 Reserved

1.6 Reserved

GROUP II – GENERAL PROVISIONS

Part 2: Reserved

GROUP II – GENERAL PROVISIONS

Part 3: Reserved

GROUP II – GENERAL PROVISIONS

Part 4: Reserved

GROUP II – GENERAL PROVISIONS

Part 5: Reserved

GROUP II – GENERAL PROVISIONS

Part 6 – Classification of Buildings

6.1 *Classification.*

The classes of buildings.

(1) For the purposes of this Manual, buildings and portions of buildings are classified as follows:

(a) Class I: Single dwelling-houses;

(b) Class II: Buildings containing two or more flats;

(c) Class III: Residential buildings, being common places of abode for a number of unrelated persons, including –

(i) boarding-houses, guest-houses, hostels, and lodging-houses;

(ii) the residential portions of hotels and motels;

(iii) the residential portions of schools;

(iv) the residential portions of institutional buildings accommodating members of the staff of the institution; and

(v) flats not included in paragraph (b) or paragraph (d).

(d) Class IV: Flats in buildings that elsewhere are of Class V, VI, VII, VIII, or IX, being in each case the only flat in the building.

(e) Class V: Office buildings, being buildings for professional or commercial purposes, excluding buildings of Classes VI, VII, VIII, and IX.

(f) Class VI: Shops and other buildings for the sale of goods by retail or the supply of services direct to the public, including –

(i) eating rooms, tea rooms, coffee rooms, cafes, restaurants, and milk and soft-drink bars;

(ii) the non-residential portions of hotels and motels;

(iii) hairdresser's and barber's shops, public laundries, and undertaker's establishments; and

(iv) markets, sale rooms, show rooms, and service stations.

(g) Class VII: Buildings that are –

(i) warehouses, being buildings for the storage of goods only or for the display of goods for sale by wholesale: or

(ii) public garages.

(h) Class VIII: Buildings that are –

(i) factories being buildings in which a handicraft or a process in or incidental to the making, assembling, altering, repairing, renovating, preparing, ornamenting, finishing, cleaning, washing or adapting of goods is carried on for trade, sale or gain –

(A) those used for a handicraft or process not mentioned in the first Schedule being of Class VIIIa; and

6.1(1) *(Cont)*

(B) those involving a process mentioned in the first Schedule being of Class VIIIb.

(i) Class IX: Buildings of a public nature, comprising –

(i) institutional buildings as defined in clause 1.3 being of Class IXa; and

(ii) schools and other assembly buildings as defined in clause 1.3 being of Class IXb, but excluding portions of such buildings that are of Class III or used as laboratories.

(j) Class X: Outbuildings.

(2) Unless the contrary intention appears, Class VIIIa and Class VIIIb are separate classifications. *Classes VIIIa and VIIIb.*

(3) Unless the contrary intention appears, Class IXa and Class IXb are separate classifications. *Classes IXa and IXb.*

(4) For the purposes of this clause the classification of a building or portion of a building is determined by the purpose for which it is designed, constructed, or adapted to be used. *Principles of classification.*

(5) Where portions of a building each have different purposes, each such portion shall, subject to clause 6.7 be separately classified in accordance with this clause. *Multiple classification.*

6.2 (1) Where there is any doubt or dispute as to the classification of a building or portion of a building, the building or portion shall be classified in such one of the classes mentioned in clause 6.1 as the Commission considers appropriate. *Doubtful classifications.*

(2) A classification so determined for a building or portion of a building shall be deemed to be its classification for the purposes of this Manual. *Effect of determination.*

6.3 Reserved

6.4 Reserved

6.5 Reserved

6.6 Reserved

6.7 Notwithstanding the provisions of clause 6.1 where part of a storey, not being a laboratory, is used for a purpose –

Classification where part of a storey has an ancillary use.

(a) for which a different classification applies; but

(b) ancillary to a purpose for which not less than ninety percent of the floor area of the storey is used,

the classification applying to the major use shall apply to the whole of the storey.

6.8 Reserved

GROUP II – GENERAL PROVISIONS

Part 7 – United Buildings

7.1 *When buildings are deemed united.*

If two or more buildings abutting each other –

(a) are connected through openings in the walls dividing them from one another; and

(b) collectively comply with all of the requirements of this Manual as though they were a single building,

they shall, for the purposes of this Manual, be deemed to be united to form one building.

7.2 *Alterations to a united building.*

If any alteration is made in two or more buildings that are deemed under clause 7.1 to have been united to form one building –

(a) the united building; or

(b) each building forming part of it,

shall after the alteration comply with all the requirements of this Manual for a single building.

GROUP II – GENERAL PROVISIONS

Part 8: Reserved

GROUP II – GENERAL PROVISIONS

Part 9: Reserved

Part 10 – Materials and Workmanship

Buildings to be properly constructed. Suitability of materials.

10.1 Every part of a building shall be erected in a good and workmanlike manner, for every requirement prescribed in this Manual.

Materials dangerous to health.

10.2 (1) Materials which for any reason are dangerous to health, or that have been used in the construction of any cesspit, drain, or sewer, shall not be used in the erection of a building.

Faulty or unsuitable materials.

(2) Faulty or unsuitable materials shall not be used in the erection of a building.

(3) The Commission may test any material used or proposed to be used in the erection of a building and may prohibit the use of any material which does not meet the relevant requirements of this Manual or which is found to be unsuitable or unfit for the purpose for which it is intended.

Authentication of materials and forms of construction.

10.3 (1) Where it is proposed to use in any part of a building any material or form of construction that is required by this Manual –

(a) to meet a specific performance requirement; or

Commissions prerogative.

(b) to comply with any code, rule, specification or provision

the Commission may require that the building application shall be accompanied by satisfactory documentary evidence in support of the proposed use of that material or form of construction.

Form of evidence.

(2) The documentary evidence referred to in sub-clause (1) may be in one of the following forms:

(a) A report issued by a competent testing authority, showing that the material or form of construction has been submitted to the tests listed in the report, and setting out the results of those tests and any other relevant information that demonstrates its suitability for use in the building as proposed.

(b) An Accreditation Certificate, being a certificate that –

(i) has been issued by the Director, Experimental Building Station, Department of Housing and Construction;

(ii) relates the properties and performance of a material or form of construction that is referred to therein to specific provisions thereof; and

(iii) has not been revoked or cancelled by the said Director.

(c) Any other form of satisfactory documentary evidence that, correctly describes the properties and performance of the material or form of construction and adequately demonstrates its suitability for use in the building as proposed.

10.3 (Cont) *Evidence re fire-resistance ratings.*

(3) The provisions of this clause do not operate so as to permit the acceptance for the purposes of clause 20.1 to 20.2 of any evidence other than the evidence referred to in those clauses.

10.4 *Adoption of British, Australian and other standards. Certain provisions excluded.*

(1) Wherever any clause of this Manual adopts by reference any code, rule, specification or provision included in any document issued by the British Standards Institution, the Standards Association of Australia or other body, the adoption, unless the relevant clause specifies otherwise, shall not include the adoption of any provision –

(a) specifying or defining the respective rights, responsibilities, or obligations as between themselves or any manufacturer, supplier or purchaser; or

(b) specifying or defining the responsibilities of any tradesman or other building operative; or

(c) requiring the submission for approval of any material, building component, or form or method of construction, or details thereof, to any person or body other than a person or body specifically empowered to give that approval; or

(d) specifying that a material, building component, or form or method of construction, or details thereof, shall be submitted to the Standards Association of Australia or a committee of the Association for expression of opinion; or

(e) permitting a departure from the code, rule, specification or provision at the sole discretion of the manufacturer, supplier or purchaser, or by arrangement or agreement between the manufacturer, supplier or purchaser.

Standards or codes amended.

(2) A reference in any clause in this Manual to a document mentioned in sub-clause (1) shall, unless the relevant clause specifies otherwise, be deemed to be a reference to that document as amended from time to time, and applying at the date of application for approval of the building work.

GROUP II – GENERAL PROVISIONS

Part 11 – Site Requirements

11.1 *Interpretations.*

(1) For the purpose of this Manual, the width of the frontage of any land shall be the distance measured at right angles to one of the boundaries of the land, to the opposite boundary.

(2) Where the side boundaries of the land are not parallel the average distance between opposite boundaries at front and rear shall be the width of the frontage.

11.1 *(Cont)* (3) Where the corner of the site has been truncated –

(a) the width of the frontage shall be a point, at the intersection of the side and front boundaries of the site;

(b) the area of the site shall include the area of the truncated portion for the purposes of this part.

11.2 (1) The length of a wall is its total measured length, irrespective of any projections or set backs. *Length of wall.*

(2) The length of a wall containing windows of habitable rooms shall be measured separately from that portion of the wall not containing windows of habitable rooms.

11.3 (1) No Class I or II building shall be constructed within a distance of 7.5 m from the street alignment of the primary street, and in the case of a corner allotment, 2.5 m from the alignment of the secondary street. *Class I or II buildings.*

(2) Where a provision is made for a required distance from a street alignment, that distance shall be complied with. *Street alignment.*

11.4 (1) No other building shall be erected on a site upon which a Class I, II or III building has been or will be erected unless the site has been subdivided in compliance with this Manual. *General site restrictions Class I, II and III.*

(2) Where a building of Class I, II or III has been erected and the new work is an addition or extension to such building; then

(a) the addition or extension shall not encroach into the distance required by this Manual to be provided from the street, side or rear alignment;

(b) the eaves shall not be closer than 800 mm to a boundary.

11.5 (1) A site for a Class I building shall have an area not less than 558 m^2 and a frontage not less than 15 m. *Site requirements Class I.*

(2) No wall shall be constructed closer than 1.5 m to a boundary other than a street boundary. Where the building does not exceed two storeys in height or 15 m in length, then

(a) the distance from the boundary shall be increased by 300 mm for each 3 m by which the wall exceeds 15 m in length, and

(b) 600 mm for each storey in excess of two storeys.

11.6 The area of a Class I building, including all roofed areas and outbuildings, together with all verandahs, balconies and the like, whether roofed or not and to which access is available, shall not exceed the plot ratio 0.33. For the purposes of this Clause, an unroofed area *Plot ratio.*

11.6 *(Cont)* raised above finished ground level by not more than 450 mm and unenclosed areas below an elevated building shall not be included in the calculations of the plot ratio.

11.7 *Site requirements Class II buildings.*

(1) A Class II building shall comply with the following requirements.

(2) No wall shall be constructed closer than 3 m to a boundary, other than a street boundary. Where the building does not exceed three storeys in height or 18 m in length, then

(a) the distance from the boundary shall be increased by 600 mm for every 3 m or part thereof by which the wall exceeds 18 m, provided that,

(b) no wall shall be required to exceed 10.5 m from the boundaries.

(3) The distance required under sub-clause 11.7 (2) shall be increased by 1.5 m for every storey by which the building exceeds three storeys.

(4) Notwithstanding the provision of sub-clause 11.7 (2), walls not containing windows of habitable rooms may be at half the distance from the side or rear boundaries required by that sub-clause, except that no wall shall be closer than 1.5 m from such boundaries.

(5) Walls of buildings not parallel with the side or rear boundaries may be built so that their average distance from the boundaries is as required in Clauses 11.6 and this clause, irrespective of their length, provided they are no closer than is required for a wall of the same height and not exceeding 18 m in length.

11.8 *Opposing walls and windows.*

(1) Walls facing each other which contain windows of habitable rooms, shall not be less than 6 m apart, unless such windows are contained within a sole occupancy unit or dwelling.

(2) No Class II building shall be erected on a site with a frontage less than 20 m.

11.9 *Plot ratio.*

The area of a Class II building, including all roofed areas and out-buildings, together with all verandahs, balconies and the like, whether roofed or not and to which access is available shall,

(a) not exceed the plot ratio 0.5,

(b) be subject to clause 11.7 as applicable.

For the purposes of this Clause, an unroofed area raised above finished ground level by not more than 450 mm shall not be included in the calculation of the plot ratio.

11.10 (1) For a Class II building, one vehicle space to every sole occupancy unit shall be provided and such spaces shall be 6 m x 3 m in its dimensions. *Vehicle spaces.*

(2) Vehicles spaces shall only be sited at the side or rear of the building unless otherwise approved by the Commission.

(3) Where carports or garages are to be provided, they shall be sited in accordance with sub-clause 2 and 4 hereof and any other provisions of this Manual.

(4) Any vehicle space, carport or garage shall be so sited as to be accessible at all times.

11.11 Class II buildings that are to be erected in areas zoned for buildings of any height, shall comply with the zoning requirements and any other provisions of this Manual.

11.12 Class III buildings erected in accordance with any zoning requirements shall not exceed the plot ratio determined under such requirements; together with any other provisions of this Manual, but in no case shall the plot ratio where not determined exceed 1.0. *Site requirements.*

11.13 Class IV occupancy buildings shall: *Site requirements Class IV.*

(a) have an area of not less than 42 m^2 of open space for its sole use;

(b) the minimum dimensions of such open spaces shall not be less than 9 m;

(c) the open spaces may be provided at the ground floor level or at a higher level, subject to the approval of the Commission;

(d) comply with all other requirements of this Manual.

11.14 Class V, VI, VII, VIII and IX buildings erected in accordance with any zoning requirements shall not exceed the plot ratio determined under such requirements, together with any other provisions of this Manual; but in no case shall the plot ratio exceed 4.0. *Site requirements Class V, VI, VII, VIII and IX.*

11.15 (1) Buildings of Class VI, VII, VIII and IX, occupancy shall be provided with loading bays within the site boundaries. *Rear access Class VI, VII, VIII and IX.*

(2) Separate tenancies within buildings of Class VI, VII, VIII or IX occupancies shall be provided with a separate rear access leading to the loading bays.

(3) The access provided shall not be located so as to pass through or in front of the front entrance of any shop or tenancy.

11.15 (4) Refuse collection areas shall be accessible at all times for the purpose of refuse removal, and the minimum area to be set aside shall be 2 m^2 for each tenancy; refer to Part 45 of this Manual.
(Cont)

11.16 (1) Buildings of Class V occupancy shall be provided with vehicle parking facilities in accordance with the requirements of the Commission.
Parking requirements and rear access Class V.

(2) A loading bay area shall be provided within the site boundary, accessible to all tenancies, and for purpose of refuse removal as provided under Part 45 of this Manual.

11.17 Class III, V, VI, VII, VIII and IX buildings may be erected with external walls adjacent to their site boundaries, providing that all other requirements of this Manual are met.
Class III, V, VI, VII, VIII and IX walls or boundaries.

GROUP III – BUILDINGS IN COURSE OF CONSTRUCTION OR DEMOLITION

Part 12 – Precautions during Construction

Protection of public.

12.1 (a) Where a building is to be constructed or pulled down, precautions shall be taken to ensure the safety of the public using adjacent streets and particulars for such precautions shall be submitted to and approved by the Commission before any work is commenced.

(b) Where any excavations connected with the construction or pulling down of any building are made in or adjoining any street, such excavations shall be adequately fenced, and at night, lighted to prevent injury to the public and where considered necessary by the Commission shall be properly timbered to prevent damage to such street.

Protection of workmen.

12.2 (a) The builder shall make due provision for safe working throughout all building operations so that no workmen are subjected to risks or danger and shall put into effect at his own expense any further precautions that the Commission may deem necessary.

(b) Where excavations connected with the construction or pulling down of any building require to be timbered, such timbering shall be so constructed as to afford protection for workmen employed.

Scaffolding.

12.3 When a scaffolding is necessary for any building operation, the footpath or ground adjacent to such scaffolding shall be covered over and kept covered over to the satisfaction of the Commission until the completion of the work so that any person may not be endangered or inconvenienced by falling materials.

Such scaffolding shall be erected in conformity with and be maintained to the satisfaction of the Commission and removed as soon as possible after completion of the work requiring its use. Where such scaffolding has been erected over or upon a public footpath, such footpath shall be reinstated and all damaged portions made good or renewed and left in a condition satisfactory to the Commission.

Temporary ramps

12.4 Where temporary ramps are required to provide access to excavations in connection with any building operations, such ramps shall be constructed to a suitable grade and have the necessary strength and stability. Every ramp shall have a minimum width of 3 m between kerbs and a guide or kerb on each side at least 230 mm in height and 150 mm in width.

Protection of adjacent property.

12.5 (a) (i) Where excavation or demolition is to be made in proximity to an existing building the walls of such building shall be shored and/or underpinned and/or

12.5 (a) (i) *(Cont)* protected as may be necessary in the opinion of the Commission to ensure stability.

(ii) Where the foundation of an existing building is of material likely to become unstable as a result of the excavation of adjoining ground additional precautions to the satisfaction of the Commission shall be taken to ensure its stability.

(b) Where the foundation of an existing building consists of hard stable rock the requirements of sub-clause (a) relating to underpinning may be dispensed with.

12.6 *Height of walls during construction.* No wall or portion of a wall shall, during its construction, be built to a height greater than 1530 mm or six times its thickness, whichever is the greater, unless it is supported by temporary shores, proper scaffolding or buttresses at intervals of length not greater than thirty times its thickness, until such time as roof or floor or cross walls are in position.

12.7 *Pulling down of buildings.* The following requirements in connection with the pulling down of buildings shall be complied with:

(a) unless otherwise approved by the Commission, storey after storey shall be completely removed;

(b) materials being removed from any building shall not be placed upon the floor or floors of such building, but shall be lowered to the ground immediately upon displacement and removed from site unless otherwise permitted by the Commission;

(c) no portion of any external wall abutting on any street shall be pulled down except between such hours as the Commission may direct;

(d) for the purpose of preventing or lessening nuisance from dust, material displaced from a building shall be kept sprayed with water.

12.8 *Alterations to buildings.* Where alterations are being made to any building, every portion of the building likely to become structurally insecure by reason of such alterations shall be adequately shored up and supported to the satisfaction of the Commission.

12.9 *Storage of materials.* No builder shall deposit or store any material whatsoever on a public street, footpath, or other public ground except for the purpose of immediate transportation of such material on to the building site or ground being used for the purposes of building operations. In such case the receipt and transportation shall be carried out as expeditiously as possible and at such time as in special circumstances the Commission may direct so as to cause the least possible obstruction to traffic on the street or footpath and with due precautions for the public safety and convenience.

12.9 *(Cont)* Any part of the street or footpath for which the builder has procured a licence for use and enclosure by a hoarding shall be deemed part of the building site for the purposes of this clause for the period covered by such licence.

12.10 *Sanitary accommodation for workmen.*

(a) In connection with the construction of all buildings, approved sanitary accommodation shall be provided on the site of the works, the number of closets being at least one twentieth of the maximum number of men simultaneously employed thereon.

(b) Every closet not connected to a sewerage system shall be placed at the rear of the site at least 1200 mm from any boundary fence and 7.5 m from any house and shall be constructed to the satisfaction of the Commission.

GROUP III – BUILDINGS IN COURSE OF CONSTRUCTION OR DEMOLITION

Part 13: Reserved

GROUP IV – BUILDING IN RELATION TO PUBLIC ROADS

Part 14 – Height in Relation to Widths of Roads

Width of a street.

14.1 For the purposes of this Part, the width of a street or road shall be the measurement at right angles from the boundary of an allotment at the centre of the frontage of that allotment to the opposite boundary in the same street.

Application of purpose.

14.2 The application of the purposes described under clause 14.1 sub-clauses (1) and (2) relate to requirements in other parts of this Manual.

Height of buildings.

14.3 A height of any building shall be determined in accordance with the requirements of this Manual in relation to plot ratio, space about the building for fire fighting appliances, distance of set backs from frontage alignments and any other requirement which specifically controls the height of a building, in respect of its distance from a road, airport, wireless transmitting station or the like, as considered necessary by the Commission.

GROUP IV – BUILDING IN RELATION TO PUBLIC ROADS

Part 15 – Projections Beyond Road Alignments

Projections generally prohibited.

15.1 Except as otherwise provided in this Manual no part of a building shall project over the street road or public place to which the building has frontage.

Decorative projections.

15.2 Projections of a decorative nature such as cornices, eaves, sills, mullions, and architraves, may project over the road or street if –

(a) the road is not less than 12 m wide; and

(b) the projections –

(i) extend not more than 300 mm beyond the road alignment,

(ii) are at least 3 m above the pathway level of the road over which they project; and

(iii) are constructed of masonry, reinforced concrete, or other approved fire-resisting material.

Sunblind canopies, sun louvres and the like.

15.3 (1) Sunblind canopies, sun controls, awnings and the like may project over the road or street where –

(a) the road is not less than 6 m wide; and

(b) the projections –

(i) are at least 3 m above the pathway level of the road over which they project; and

(ii) are constructed of approved non-combustible material throughout.

15.3 *(Cont)* (2) No projection described under clause (1) of this clause may project over the road or street where such road or street is less than 6 m wide.

Prohibited projections.

Distance of projections from kerb.

(3) Projections over the road or street shall not encroach within a distance of 450 mm from the face of the kerb or rainwater channel of the carriageway.

15.4 Footings may project into the road or street to the extent of not more than –

Footings under roads.

(a) 450 mm if the projecting parts are not less than 1350 mm below pathway level; and

(b) 750 mm if the projecting parts are not less than 3 m below pathway level, but in no case shall such projections extend under the carriageway of the road.

15.5 No person shall hang or construct any gate, door, window, sash, or shutter to any building, premises or showcase so as to open outwards on to any road, street, way or public space, unless the whole of such gate, door, window, sash or shutter is at least 3 m above the level of the footway or space.

Projection of gates, doors, windows.

15.6 Pipes and services shall not project over the road or street except that –

Pipes and services.

(a) rainwater heads may project no more than 300 mm;

(b) rainwater downpipes may project not more than 150 mm above a height of 3 m above pathway level.

15.7 Bay windows or balconies may project not more than 450 mm over the road or street if –

Bay windows and balconies.

(a) the road or street is not less than 12 m in width; and

(b) such projections –

(i) are limited in extent to not more than 50 per cent of any road or street frontage of the building at any level;

(ii) are not at any part within 1350 mm of the adjoining property at the road, or street frontage; and

(iii) are not at any part within 3 m of the road or street below; and

(iv) are constructed of approved non-combustible material throughout.

15.8 Hoists or catheads shall not project over any street or road nor shall vehicle docks or loading platforms be located so that any portion of any vehicle occupying same, projects over the street or road.

Hoists and catheads.

15.9 All permissible projections other than footings shall be so constructed that they may be removed at any time after their erection without causing the building of which they are a part to become structurally unsafe and without causing a reduction in the fire-resistance rating of any structural member of the building required by this Manual.

Permissible projections to be constructed in certain way.

Part 16 – Fire-resisting Construction of Buildings

16.1 *Certain buildings to be of certain types of construction.*

(1) Unless otherwise permitted by this Manual buildings of Classes II to IX inclusive shall be erected in one of the following types of construction:

The buildings and types of construction concerned.

(a) Type 1, in accordance with Clause 16.7;

(b) Type 2, in accordance with Clause 16.8;

(c) Type 3, in accordance with Clause 16.9;

(d) Type 4, in accordance with Clause 16.10;

(e) Type 5, in accordance with Clause 16.11.

The buildings deemed to be of fire-resisting construction..

(2) For the purposes of this Manual, a building that meets the requirements of this Part for one of the types of construction described in sub-clause (1) shall be deemed to be a building of fire-resisting construction.

Order of fire resistance of the types of construction.

(3) Type 1 construction shall be deemed to be the most fire-resistant and Types 2 to 5 the successively less fire-resistant of the types of fire-resisting construction.

16.2 *Type of construction in a particular building.*

(1) The types of fire-resisting construction required in a building shall be the least fire-resistant type of construction permissible.

(2) A building that is required by Part 17 to be of a particular type of fire-resisting construction may be erected in a more fire-resistant type of construction.

Requirement for Type IV.

(a) The structural members of a Class IV section of a building shall be of the same fire-resisting construction as is required for corresponding members in the building of which it is part.

16.3 *Fire-separated sections of a building.*

Each section of a building that is fire-separated according to Part 23 from the remainder of the building shall be subject to this Part as though it were itself a building.

16.4 *Fire protection for a support of another part.*

A part of a building that gives direct or indirect vertical support to another part required to have a fire-resistance rating shall have a fire-resistance rating not less than the greater of –

(a) the fire-resistance rating required for the part it supports; and

(b) the fire-resistance rating, if any, required for the part itself;

and be non-combustible if the part it supports is required to be non-combustible.

16.5 The following materials, though combustible or containing combustible fibres, may be used wherever this Manual requires a non-combustible material:

Certain materials permissible where non-combustible materials are required.

(a) plasterboard;

(b) perforated gypsum lath with a normal paper finish;

(c) fibrous-plaster sheet conforming to Australian Standard A.44 1959 "Fibrous Plaster Products".

16.6 (1) In this Manual, "fire-source feature" means, in relation to a building, and as the case requires –

Exposure to fire-source features.

The features in relation to a building.

(a) the farther boundary of a public place adjoining the site; or

(b) a side boundary of the site, together with a 1.5 m straight projection of that boundary on to a public place; or

(c) a rear boundary of the site; or

(d) an external wall of another building, not of a Class I or Class X, that stands on the site.

(2) Except as in sub-clause (3), a part of a structural member shall be deemed to be exposed to a fire-source feature if any of the horizontal straight lines between that part and the fire-source feature, or a vertical projection thereof, is not obstructed by another part of the building that –

Where the exposure is deemed to occur.

(a) has a fire-resistance rating of not less than ½ hour; and

(b) is neither transparent nor translucent.

(3) A part of a structural member shall not be deemed to be exposed to a fire-source feature if –

Where a fire-source feature is to be neglected.

(a) the fire-source feature is an external wall of another building that stands on the site and the part concerned is more than 15 m above the highest part of that external wall; or

(b) the fire-source feature is a side or rear boundary of the site and the part concerned is below the level of the finished ground at every relevant part of the boundary concerned.

(4) The "effective distance" between a part of a structural member and a fire-source feature to which it is exposed means the lesser of –

Effective distance and its determination.

(a) the horizontal distance from that part to the fire-source feature, or a vertical projection thereof, measured at right angles to the vertical face of the part; and

(b) three times the horizontal distance from the fire-source feature to that part, measured at right angles to the fire-source feature or a vertical projection thereof;

or, if one of these distances cannot be found (because of the particular geometrical considerations concerned), then the other distance or triple-distance, as applicable.

16.6 *(Cont)*

Where various effective distances apply.

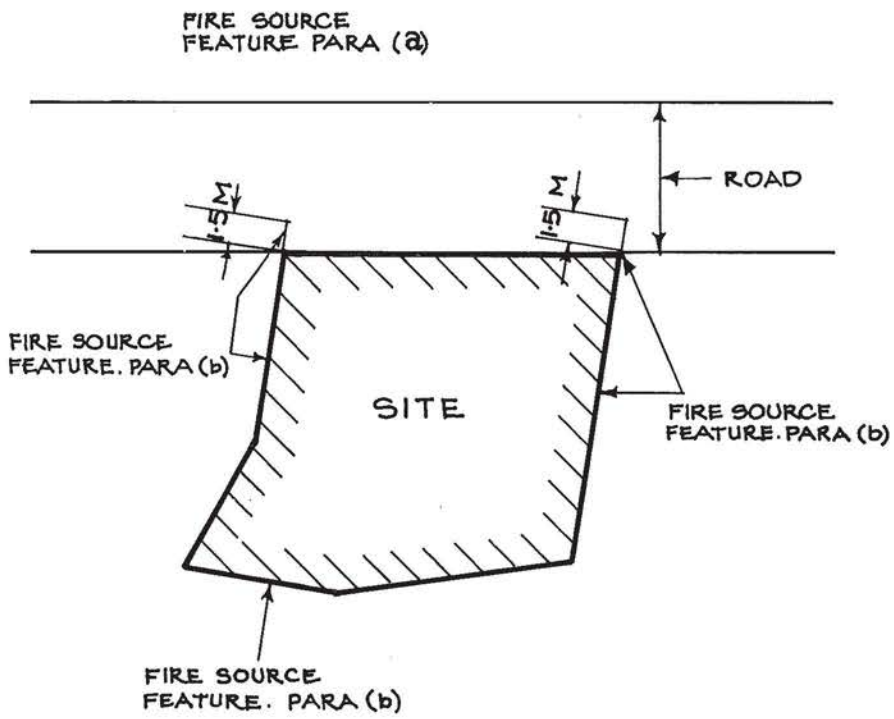
(5) Where, in terms of this clause various "effective distances" apply for different portions of a structural member, that member shall be so constructed that –

(a) the entire member has the fire-resistance rating applicable to that portion having the least "effective distance" between itself and the relevant fire-source feature; or

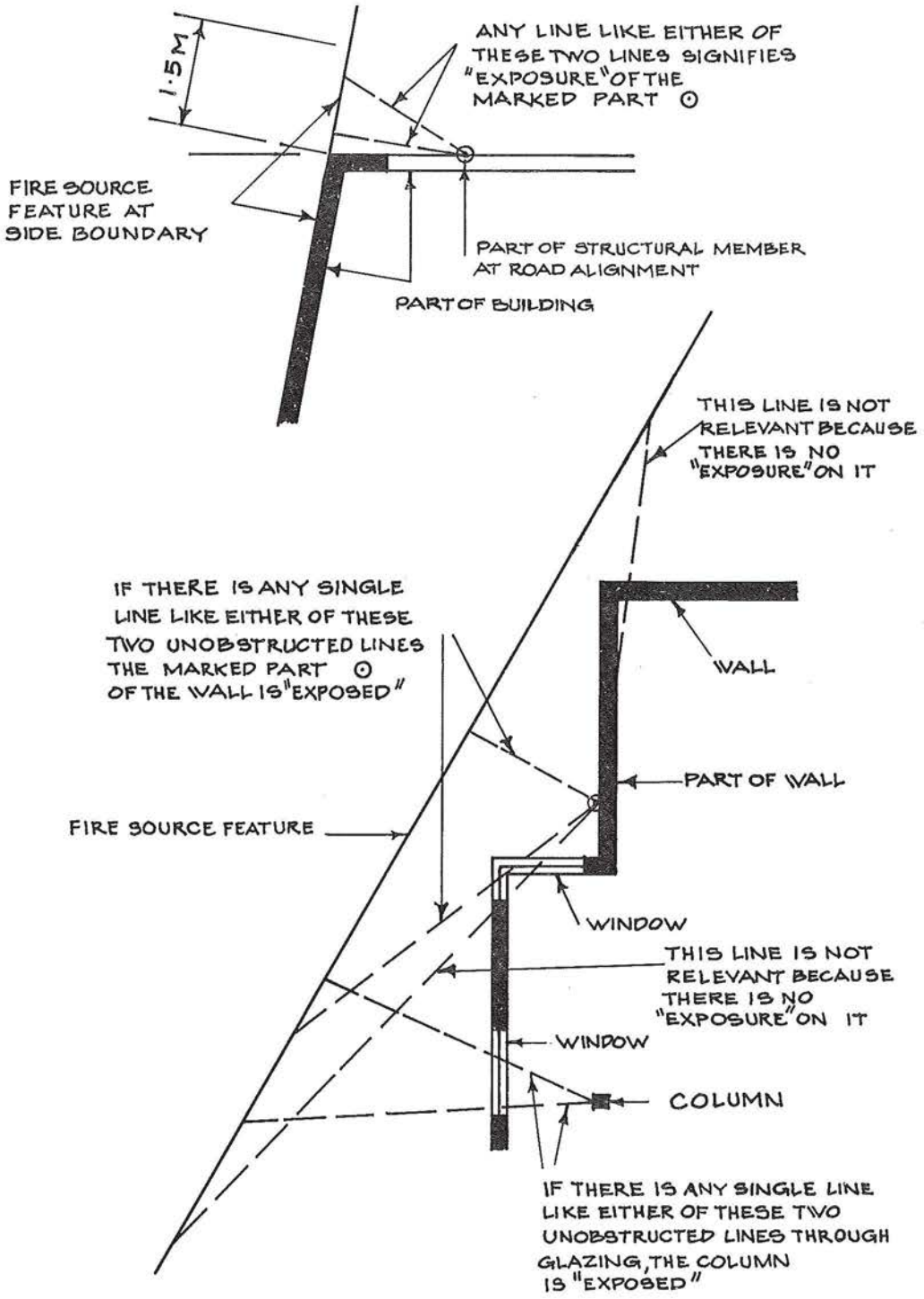
(b) each such portion of the member has the fire-resistance rating applicable according to its individual "effective distance" from the relevant fire-source feature,

but this provision shall not so operate as to permit exemption from clause 16.4.

PLAN ILLUSTRATING SUB-CLAUSE (1) OF CLAUSE 16.6



PLANS EACH ILLUSTRATING SUB-CLAUSE (2) OF CLAUSE 16.6



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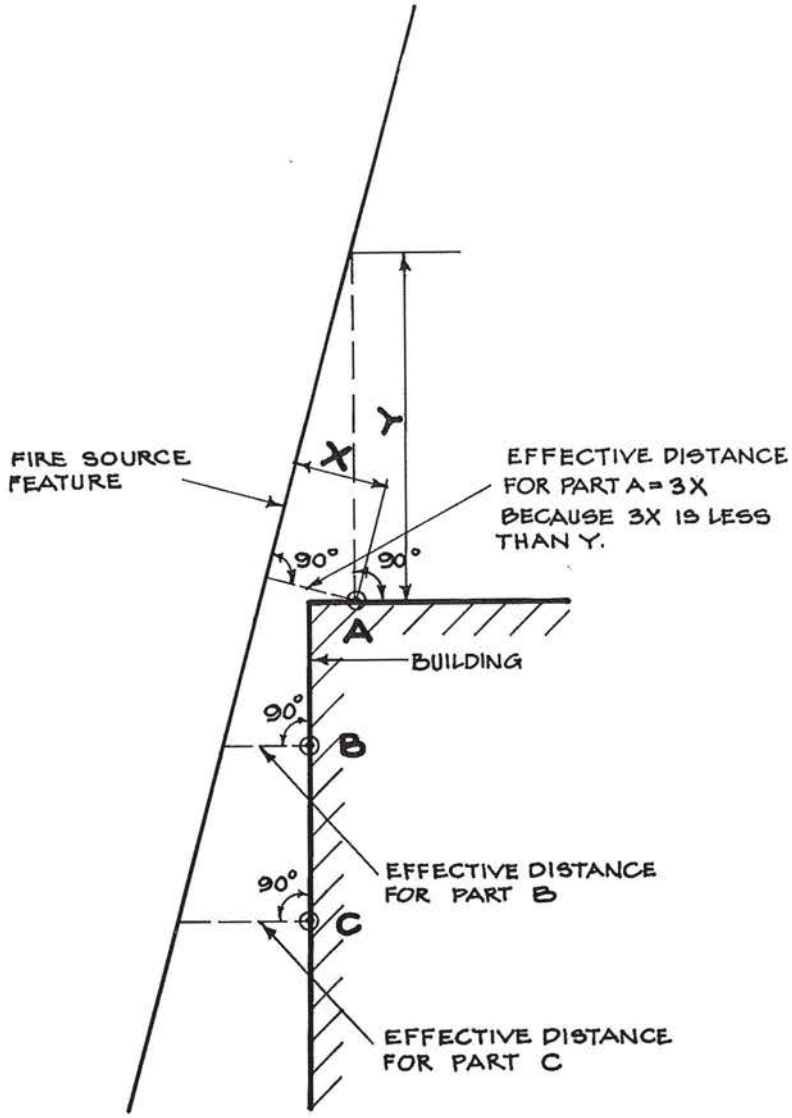


16.7 *Type 1 constructions – Requirements.*

(1) In a building required to be of Type 1 construction, each part mentioned in it, shall (subject to the modifications set out in this clause and clause 16.22) –

(a) be non-combustible except where a rating is not listed;

(b) have a fire-resistance rating not less than that listed in the Table, for the particular class of building concerned; and

(c) be constructed according to sub-clause (11) or sub-clause (12) if applicable.

TABLE 16.7.

TYPE 1 CONSTRUCTION: FIRE RESISTANCE RATINGS OF STRUCTURAL MEMBERS.

Structural members	Ratings (in hours)							
	Class of building							
	II	III	V	VI	VII	VIIIa	VIIIb	IX
External walls (including beams and columns incorporated in them) and other external structural members where, in terms of clause 16.6, the effective distance between the wall or other member and any fire-source feature to which it is exposed is –								
for loadbearing parts –								
less than 4.5 m	3	3	3	3	4	3	4	3
4.5 m to less than 6 m ..	2	2	2	3	4	3	4	2
6 m or more	1½	1½	2	3	4	3	4	2
for non-loadbearing parts (including spandrels) –								
less than 4.5 m	3	3	3	3	4	3	4	3
4.5 m to less than 6 m ..	2	2	2	3	4	3	4	2
6 m to less than 7.5 m ..	1½	1½	2	3	4	3	4	2
7.5 m to less than 9 m ..	1	1	1½	2	3	2	3	1½
9 m or more	1	1	1	1½	2	1½	2	1
Common walls and party walls ...	4	4	4	4	4	4	4	4
Internal loadbearing walls and fire walls (including those bounding public corridors, public hallways, and the like, or between or bounding sole-occupancy units, and those of loadbearing shafts)	1½	1½	2	3	4	3	4	2
Lift shafts and stair shafts required to be fire-resisting that are not loadbearing	1½	1½	2	2	2	2	2	2
Ventilating, pipe, garbage, and like shafts neither intended for discharge of hot products of combustion nor loadbearing ...	1½	1½	1½	2	2	2	2	1½
Internal non-loadbearing walls (including partition walls) –								
bounding public corridors, public hallways, and the like	1	1	..	..	1	1	1	..
between or bounding sole-occupancy units	1	1	..	..	..	..	..	..
bounding a stairway that is not required to be enclosed by a fire-resisting shaft	1	1	..	..	..	..	..	..
Floors (including floor beams), roofs (including roof beams and trusses), and internal columns	1½	1½	2	3	4	3	4	2

16.7 *(Cont)*

(2) In a Class II building, a fire-resistance rating of 1½ hours shall apply, as a modification of Table 16.7, for any structural member, except a common or party wall, required by that Table to have a fire-resistance rating exceeding 1½ hours. *Class II buildings – Concession.*

(3) In a Class II building of Type 1 construction where – *Class II buildings. Concession for floors within flats.*

(a) a flat extends through two storeys; and

(b) all the walls bounding that flat are non-combustible and have a fire-resistance rating of not less than 1½ hours;

the floor separating the two storeys within the flat may be combustible and need not have a fire-resistance rating.

(4) In a Class II, III, V or IX building of Type 1 construction, the following floors need not have a fire-resistance rating or be non-combustible: *Buildings of Classes II, III, V and IX – concession for certain floors.*

(a) a floor laid directly on the ground;

(b) a floor, not laid directly on the ground, the space below which is not a storey and is not designed, constructed, or adapted for –

(i) the accommodation of motor vehicles; or

(ii) the accommodation of bathrooms, shower rooms, laundries, water closets, or other sanitary compartments; or

(iii) used as a work area; or

(iv) storage or any other ancillary purpose thereto.

(5) In a Class V or IX building, if any floor is designed for a live load not exceeding 3.0 kPa, a fire-resistance rating of 1½ hours shall apply, as a modification of Table 16.7, for – *Classes V and IX buildings – concession according to floor loading.*

(a) the floor next above (including floor beams); or

(b) the roof, if that is next above (including roof beams).

(6) In a Class VII building having a rise of not more than six storeys, internal non-loadbearing walls (including partition walls) bounding public corridors, public hallways, and similar spaces may contain combustible framing, if the combustible material so concerned – *Certain Class VII buildings – concession for certain internal non-loadbearing walls.*

(a) has not been glued or similarly joined; and

(b) in the aggregate has a mass per unit length of not more than 45 kg/m of partition wall measured horizontally.

(7) For an open-deck parking station the following fire-resistance ratings shall apply, as modifications of Table 16.7; and of sub-clause 10, of this clause for those structural members which are not subject to the provisions of clause 16.4 – *Class VII open-deck stations – modifications for certain parts.*

(a) For a column situated, in terms of clause 16.6,

16.7
(7) (a)
(Cont)

at an effective distance of less than 4.5 m from a fire-source feature to which it is exposed .... 3 hours

(b) For any other column ..... 2 hours

(c) For an internal loadbearing wall or fire wall .... 2 hours

(d) For a floor beam wherever more than half its cross-section is less than 3 m from an edge of a floor .... 2 hours

(e) For a floor beam otherwise ..... 1 hour

(f) For a floor ..... 1 hour

Certain buildings of Classes II, III and IX: concession for roof.

(8) In a Class II, III or IX building having a rise of not more than six storeys, the roof need not comply with sub-clause (1) if –

(a) the roof covering is non-combustible; and

(b) the ceiling immediately below the roof has a resistance to the incipient spread of fire to the roof space of one hour, as determined in the Standard Fire Test.

Certain buildings of Classes V to VIII: concession for roof.

(9) In a Class V, VI, VII or VIII building having a rise of not more than three storeys, the roof need not comply with sub-clause (1) but if the building has a rise of more than three storeys –

(a) the roof covering shall be non-combustible; and

(b) the ceiling immediately below the roof shall have a resistance to the incipient spread of fire to the roof space of one hour, as determined in the Standard Fire Test.

Internal columns exposed through a window to a fire-source feature.

(10) That section of Table 16.7 specifying fire-resistance ratings according to effective distance extends also to those parts of an internal column that –

(a) face and are within 1.5 m of a window; and

(b) are exposed (in terms of regulation 16.6) through that window to a fire-source feature.

Certain internal walls to be constructed in specific ways.

(11) Every internal wall (including a partition wall) required by Table 16.7 to have a fire-resistance rating:

(a) shall extend to –

(i) the underside of the floor, if any, next above; or

(ii) the underside of a roof complying with sub-clause (1); or

(iii) the roof covering of any other roof; or

(iv) a ceiling immediately below the roof and having a resistance to the incipient spread of fire to the roof space of one hour, as determined in the Standard Fire Test; and

(b) shall be so fixed to the floor, roof, or ceiling concerned as to be held by it against overturning in the event of fire.

16.7 *(Cont)*

(12) In the building of Type 1 construction –

Certain parts of Type 1 construction to be constructed of specific materials.

(a) internal loadbearing walls and fire walls (including those that are parts of loadbearing shafts) shall be of concrete or masonry; and

(b) non-loadbearing –

(i) lift shafts and stair shafts required to be fire-resisting; and

(ii) ventilating, pipe, garbage, and similar shafts that are not intended for discharge of hot products of combustion;

shall be of concrete, masonry, or plaster on metal lath or other material not less hard and dense than plaster on metal lath.

Concessions for certain internal columns and walls.

(13) Where, pursuant to sub-clause (8) or sub-clause (9), a roof that does not have a fire-resistance rating is used in a building having a rise of not more than six storeys, internal columns (excluding those referred to in sub-clause (10)) and internal loadbearing walls (excluding fire walls) in the storey immediately below that roof may have the following fire-resistance ratings instead of those listed in Table 16.7:

(a) Class I and Class III buildings – one hour;

(b) Class V, VI, VII and VIII buildings – one hour if the building has a rise exceeding three storeys, but otherwise no rating.

16.8 (1) In a building required to be of Type 2 construction:

Type 2 construction.

(a) external walls, common or party walls, and any beams or columns incorporated in them shall be non-combustible; and

(b) each part mentioned in Table 16.8, and any beam or column incorporated in it, shall (subject to the modifications set out in this clause) –

(i) have a fire-resistance rating not less than that listed in the Table, for the particular class of building concerned; and

(ii) be constructed according to sub-clause (10) or sub-clause (11) if applicable.

16.8
(Cont)

TABLE 16.8.

TYPE 2 CONSTRUCTION: FIRE-RESISTANCE RATINGS OF STRUCTURAL MEMBERS.

Structural members	Ratings (in hours) Class of building							
	II	III	V	VI	VII	VIIIa	VIIIb	IX
External walls (including beams and columns incorporated in them) and other external structural members where, in terms of clause 16.6, the effective distance between the wall or other member and any fire-source feature to which it is exposed is –								
for loadbearing parts –								
less than 4.5 m	3	3	3	3	4	3	4	3
4.5 m to less than 6 m ..	2	2	2	3	4	3	4	2
6 m or more	1½	1½	2	3	4	3	4	2
for non-loadbearing parts (including spandrels) –								
less than 4.5 m	3	3	3	3	4	3	4	3
4.5 m to less than 6 m ..	2	2	2	3	4	3	4	2
6 m to less than 7.5 m ..	1½	1½	2	3	4	3	4	2
7.5 m to less than 9 m ..	1	1	1½	2	3	2	3	1½
9 m or more	1	1	1	1½	2	1½	2	1
Common walls and party walls	4	4	4	4	4	4	4	4
Internal loadbearing walls and fire walls (including those bounding public corridors, public hallways, and the like, or between or bounding sole-occupancy units, and those of loadbearing shafts)	1½	1½	2	3	4	3	4	2
Lift shafts and stair shafts required to be fire-resisting that are not loadbearing	1½	1½	2	2	2	2	2	2
Ventilating, pipe, garbage, and like shafts neither intended for discharge of hot products of combustion nor loadbearing ...	1½	1½	1½	2	2	2	2	1½
Internal non-loadbearing walls (including partition walls) –								
bounding public corridors, public hallways, and the like	1	1	..	..	1	1	1	..
between or bounding sole-occupancy units	1	1	..	..	..	..	..	..
bounding a stairway that is not required to be enclosed by a fire-resisting shaft	1	1	..	..	..	..	..	..
floors (including floor beams), roofs (including roof beams and trusses), and internal columns	1	1	1	1	1	1	1	1

Certain floor and roof construction deemed to comply.

(2) In a building of Type 2 construction, a floor or roof shall be deemed to have a fire-resistance rating of one hour if:

(a) the ceiling immediately below the floor or roof has a resistance to the incipient spread of fire to the space above itself of one hour, as determined in the Standard Fire Test; and

(b) in the case of a roof, the roof covering is non-combustible.

16.8 *(Cont)*

(3) In a building of Type 2 construction, the following floors need not have a fire-resistance rating: *Concession for certain floors.*

(a) a floor laid directly on the ground;

(b) a floor, not laid directly on the ground, the space below which is not a storey and is not designed, constructed or adapted for –

(i) the accommodation of motor vehicles; or

(ii) the accommodation of bathrooms, shower rooms, laundries, water closets, or other sanitary compartments; or

(iii) used as a work area; or

(iv) storage or any other ancillary purpose thereto.

(4) In a Class II building a fire-resistance rating of 1½ hours shall apply, as a modification of Table 16.8, for any structural member, except a common or party wall, required by that Table to have a fire-resistance rating exceeding 1½ hours. *Class II buildings: concession.*

(5) In a Class II building of Type 2 construction a floor separating two storeys within a single flat need not have a fire-resistance rating if the walls bounding that flat are non-combustible. *Class II buildings: concession for floors within flats.*

(6) Where the roof of a building and the ceiling immediately below that roof comply with sub-clause (2), a fire-resistance rating of one hour shall apply as a modification of Table 16.8, for an internal loadbearing wall (excluding a fire wall) in the storey immediately below that roof. *Concession for certain load-bearing walls.*

(7) For an open-deck parking station, the following fire-resistance ratings shall apply, as modifications of Table 16.8: *Class VII – open-deck parking stations modifications for certain parts.*

(a) for a column situated, in terms of clause 16.6, at an effective distance of –

(i) less than 4.5 m from a fire-source to which it is exposed ..... 2 hours

(ii) 4.5 m to less than 9 m from such a feature .... 1½ hours

(iii) 9 m or more from such a feature ..... 1 hour

(b) for an internal loadbearing wall or fire wall ..... 2 hours

(8) In a building of Type 2 construction, the roof and its internal supporting columns (excluding those referred to in sub-clause (9)) need not comply with sub-clause (1) if the rise of the building does not exceed two storeys. *Roofs and certain columns in certain low rise buildings: concession.*

(9) Those parts of an internal column in a building of Type 2 construction that – *Internal columns exposed through a window to a fire-source feature.*

(a) face and are within 1.5 m of a window; and

16.8 (9) *(Cont)*

(b) are exposed (in terms of clause 16.6) through that window to a fire-source feature –

shall, if the effective distance between the fire-source feature and the part of the column concerned is less than 6 m, have a fire-resistance rating of not less than 1½ hours.

Certain partition walls to be constructed in specific ways.

(10) A partition wall required by Table 16.8 to have a fire-resistance rating –

(a) shall extend to –

(i) the underside of the floor, if any next above; or

(ii) the underside of a roof complying with sub-clause (1); or

(iii) a ceiling as described in sub-clause (2); and

(b) shall –

(i) be so fixed to the floor, roof, or ceiling concerned as to be held by it against over-turning in the event of fire; or

(ii) be of concrete or masonry carried on a wall of concrete or masonry below.

Other parts of Type 2 construction to be constructed in specific ways.

(11) In a building of Type 2 construction –

(a) internal loadbearing walls and fire walls (including those that are parts of loadbearing shafts) shall be of concrete or masonry; and

(b) non-loadbearing –

(i) lift shafts and stair shafts required to be fire-resisting; and

(ii) ventilating, pipe, garbage, and similar shafts that are not intended for discharge of hot products of combustion;

shall be of concrete, masonry, or plaster on metal lath or other material not less hard and dense than plaster on metal lath.

16.9 *Type 3 – construction requirements.*

(1) In a building required to be of Type 3 construction –

(a) external walls, common or party walls, and any beams or columns incorporated in them shall be non-combustible;

(b) each part mentioned in Table 16.9, and any beam or column incorporated in it, shall (subject to the modifications set out in this clause) –

(i) have a fire-resistance rating not less than that listed in the Table for the particular class of building concerned; and

(ii) be constructed according to sub-clause (6) or sub-clause (9) if applicable; and

(c) parts mentioned in sub-clause (5) shall be constructed in the way specified in that sub-clause.

Table 16.9

TYPE 3 CONSTRUCTION: FIRE-RESISTANCE RATINGS OF STRUCTURAL MEMBERS

Structural members	Ratings (in hours)							
	Class of building							
	II	III	V	VI	VII	VIIIa	VIIIb	IX
External walls (including beams and columns incorporated in them) and other external structural members where, in terms of clause 16.6, the effective distance between the wall or other member and any fire-source feature to which it is exposed is–								
for loadbearing parts–								
less than 4.5 m	3	3	3	3	4	3	4	3
4.5 m to less than 6 m . .	2	2	2	3	4	3	4	2
6 m or more	1½	1½	2	3	4	3	4	2
for non-loadbearing parts (including spandrels)–								
less than 4.5 m	3	3	3	3	4	3	4	3
4.5 m to less than 6 m . .	2	2	2	3	4	3	4	2
6 m to less than 7.5 m . .	1½	1½	2	3	4	3	4	2
7.5 m to less than 9 m . .	1	1	1	1½	2	1½	2	1
9 m or more	½	½	½	1	1	1	1	½
Common walls and party walls . . .	4	4	4	4	4	4	4	4
Internal loadbearing walls and fire walls (including those bounding public corridors, public hallways, and the like, or between or bounding sole-occupancy units, and those of loadbearing shafts)	1½	1½	2	3	4	3	4	2
Lift shafts and stair shafts required to be fire-resisting that are not loadbearing	1½	1½	2	2	2	2	2	2
Ventilating, pipe, garbage and like shafts neither intended for discharge of hot products of combustion nor loadbearing . . .	1½	1½	1½	2	2	2	2	1½
Internal non-loadbearing walls (including partition walls)–								
bounding public corridors, public hallways, and the like	1	1	..	..	..	..	..	..
between or bounding sole-occupancy units	1	1	..	..	..	..	..	..
bounding a stairway that is not required to be enclosed by a fire-resisting shaft	1	1	..	..	..	..	..	..

16.9 *(Cont)*

Class II buildings concession.

(2) In a Class II building a fire-resistance rating of 1½ hours shall apply, as a modification of Table 16.9, for any structural member, except a common or party wall, required by that Table to have a fire-resistance rating exceeding 1½ hours.

Concession for certain loadbearing walls.

(3) An internal loadbearing wall (excluding a fire wall) in a storey immediately below the roof shall not be required to comply with sub-clause (1), but in a Class II or Class III building –

(a) shall have a fire-resistance rating of not less than one hour if the wall bounds –

(i) a public corridor, public hallway, or the like; or

(ii) a sole-occupancy unit; or

(iii) a stairway that is not required to be enclosed by a fire-resisting shaft; and

(b) shall, if it is a wall referred to in paragraph (a), extend –

(i) to the underside of a ceiling having a resistance to the incipient spread of fire to the roof space of not less than one hour, as determined in the Standard Fire Test; or

(ii) to the underside of the roof covering if it is non-bustible; or

(iii) 450 mm above the adjoining roof covering if it is combustible;

and in the case of sub-paragraph (ii) and (iii) shall not be crossed by timber purlins or other combustible material.

Class VII – open-deck parking stations: modifications for certain parts.

(4) For an open-deck parking station the following fire-resistance ratings shall apply, as modifications of Table 16.9:

(a) for a column situated, in terms of clause 16.6, at an effective distance of –

(i) less than 6 m from a fire-source feature to which it is exposed – 1 hour;

(ii) 6 m or more from such a feature – Nil;

(b) for an internal loadbearing wall or fire wall – 2 hours.

Certain junctions of floor members and stair shafts to be constructed in a specific way.

(5) Where, in a building of Type 3 construction a stair shaft supports a floor of any structural part thereof, the junction of –

(a) the stair shaft; and

(b) the floor or part,

shall, unless the floor or part has a fire-resistance rating of one hour or more, be so constructed that the floor or part, if sagging or falling as a result of fire, will be free to do so without causing structural damage to the shaft.

16.9 *(Cont)*

(6) In a Class II or Class III building, a partition wall required by Table 16.9 to have a fire rating shall extend – *Extent of certain partition walls.*

(a) to the underside of the floor, if any, next above; or

(b) to the underside of a ceiling having a resistance to the incipient spread of fire to the space above itself of not less than one hour, as determined in the Standard Fire Test; or

(c) to the underside of the roof covering if it is non-combustible; or

(d) 450 mm above the adjoining roof covering if it is combustible;

and in the case of paragraphs (c) and (d) shall not be crossed by timber purlins or other combustible material.

(7) In a Class II or Class III building of Type 3 construction, the ceiling of the topmost storey shall be as specified in clause 16.12, except where all internal walls in that storey extend to the underside of the roof covering. *Buildings of Classes III and III: certain ceilings to be constructed in a specific way.*

(8) In a Class II, III or IX building of Type 3 construction, the following, if combustible or of metal, shall be covered with a fire-protective material in accordance with clause 16.12: *Certain parts to be covered with fire-protective material.*

(a) the underside of a floor (including the sides and undersides of its floor beams, if any) where the floor is above a storey or above a space (not being a storey) that is designed, constructed, or adapted for –

(i) the accommodation of motor vehicles; or

(ii) the accommodation of bathrooms, shower rooms, laundries, water closets, or other sanitary compartments; or

(iii) used as a work area; or

(iv) for storage or any other ancillary purpose thereto.

(b) a column supporting such a floor;

(c) the walls bounding such a space.

(9) In a building of Type 3 construction – *Other parts of Type 3 construction to be constructed in specific ways.*

(a) internal loadbearing walls and fire walls (including those that are parts of loadbearing shafts) shall be of concrete or masonry; and

(b) non-loadbearing –

(i) lift shafts and stair shafts required to be fire-resisting; and

(ii) ventilating, pipe, garbage, and similar shafts that are not intended for discharge of hot products of combustion;

shall be of concrete, masonry, or plaster on metal lath or other material not less hard and dense than plaster on metal lath.

16.10 (1) In a building of Type 4 construction all parts mentioned in this clause shall be constructed in accordance with the relevant requirements set out herein.

Type 4 construction – application of clause.

Certain parts to have fire-resistance ratings.

(2) Each part mentioned in Table 16.10, and any beam or column incorporated in it, shall (subject to the modification set out in sub-clause (3)) –

(a) be non-combustible; and

(b) have a fire-resistance rating not less than that listed in the Table for the particular class of building concerned.

Table 16.10

TYPE 4 CONSTRUCTION : FIRE-RESISTANCE RATINGS OF STRUCTURAL MEMBERS

Structural members	Ratings (in hours)					
	Class of building					
	V	VI	VII	VIIIa	VIIIb	IX
External walls (including beams and columns incorporated in them) and other external structural members where, in terms of clause 16.6, the effective distance between the wall or other member and any fire-source feature to which it is exposed is less than 3 m . . .	1	1	1	1	1	1
Fire walls	2	3	4	3	4	2

Class VII – open-deck parking stations: concession for fire walls.

(3) For an open-deck parking station a fire-resistance rating of 2 hours shall apply, as a modification of Table 16.10, for a fire wall (including one that is part of a shaft).

Certain external and internal walls.

(4) External walls not mentioned in Table 16.10 and internal load-bearing walls (including those that are parts of loadbearing shafts) shall –

(a) be of concrete or masonry; or

(b) have their main framing (including its diagonal bracing) in steel or concrete, and their sheeting, if any, in non-combustible material;

except for that part, if any, of an internal wall that supports a roof.

16.10 *(Cont)*

(5) Fire walls in a building of Type 4 construction shall be of concrete or masonry. *Fire walls.*

(6) Internal columns, if any, that support a floor in a building of Type 4 construction shall be of – *Internal columns.*

(a) steel, concrete, or masonry; or

(b) hardwood having nominal dimensions of not less than 125 mm x 125 mm.

(7) Floors in a building of Type 4 construction shall (subject to the modification set out in sub-clause (8)) – *Floors: general requirements.*

(a) be non-combustible; or

(b) have their main framing (including all floor beams and joists) in –

(i) steel or concrete; or

(ii) hardwood having nominal dimensions of not less than 100 mm x 75 mm; or

(iii) timber, other than hardwood, having nominal dimensions of not less than 125 mm x 100 mm.

(8) In a building of Type 4 construction the following floors need not comply with sub-clause (7): *Concession for certain floors.*

(a) a floor laid directly on the ground.

(b) a floor, not laid directly on the ground, the space below which is not a storey and is not designed, constructed, or adapted for –

(i) the accommodation of motor vehicles; or

(ii) the accommodation of bathrooms, shower rooms, laundries, water closets, or other sanitary compartments; or

(iii) for use as a work area; or

(iv) for storage or any other ancillary purpose thereto.

(9) A Class II, III or IX building of Type 4 construction shall, in addition to meeting the relevant requirements of this clause comply with the provisions of clause 16.11 applicable to a building of the class concerned, regarding, as the case requires – *Buildings of Classes II, III and IX: use of Type 4.*

(a) the fire-resistance rating and construction of internal walls (including partition walls) –

(i) bounding public corridors, public hallways and the like; or

(ii) between or bounding sole-occupancy units; or

(iii) bounding a stairway;

(b) the level to which a wall referred to in paragraph (a) shall extend;

16.10 *(Cont)*

(9) (c) the protection to be afforded to the underside of a floor and its supporting columns, if any; and

Certain parts to be covered with fire-protective material.

(d) the construction of the ceiling of the topmost storey.

(10) A Class IX building of Type 4 construction shall, in addition to meeting the relevant requirements of this clause comply with the provisions of sub-clause (10) of Clause 16.11 as though it were a building of Type 5 construction.

16.11 *Type 5 construction.*

(1) In a building required to be of Type 5 construction all parts mentioned in this clause shall be constructed in accordance with the relevant requirements set out herein.

Certain parts to have fire-resistance ratings.

(2) Each part mentioned in Table 16.11, and any beam or column incorporated in it, shall (subject to the modifications set out in this clause) have a fire-resistance rating not less than that listed in the Table, for the particular class of building concerned, unless it is subject to the provisions of clause 16.20 in which case the application of the provisions of this sub-clause is modified to the extent provided in clause 16.20.

Table 16.11

TYPE 5 CONSTRUCTION: FIRE-RESISTANCE RATINGS OF STRUCTURAL MEMBERS

Structural members	Ratings (in hours)							
	Class of Building							
	II	III	V	VI	VII	VIIIa	VIIIb	IX
External walls (including beams and columns incorporated in them) and other external structural members where, in terms of clause 16.6, the effective distance between the wall or other member and any fire-source feature to which it is exposed is less than 3 m	1	1	1	1	1	1	1	1
Fire walls	1½	1½	1½	3	3	3	4	1½
Internal walls (including partition walls) –								
bounding public corridors, public hallways, and the like	1	1	..	..	..	..	..	..
between or bounding sole-occupancy units	1	1	..	..	..	..	..	..
bounding a stairway	1	1	..	..	..	..	..	..

Certain external walls to be non-combustible.

(3) An external wall (including beams and columns in it) that is required by Table 16.11 to have a fire-resistance rating shall, subject to sub-clause (4) be non-combustible.

16.11 *(Cont)*

(4) Where an external wall is required by sub-clause (2) and (3) to have a fire-resistance rating and be non-combustible, those requirements shall be deemed to have been met if the outer section of the wall has the required fire-resistance rating and is non-combustible.

External walls: outer section may meet certain requirements for the wall.

(5) In a Class VII building of Type 5 construction for the storage or display of goods referred to in the first Schedule, or in a Class VIIIb building of Type 5 construction, an external wall –

Certain buildings of Classes VII and VIIIb: construction of certain other external walls.

(a) that faces and is within 7.5 m of a boundary of an adjoining allotment of land; and

(b) that is not required by Table 16.11 to have a fire-resistance rating;

shall be non-combustible or be sheeted externally with non-combustible material.

(6) In a Class II or Class III building of Type 5 construction, internal walls (including partition walls) bounding a sole-occupancy unit, or separating adjoining sole-occupancy units, need not have a fire-resistance rating if –

Buildings of Classes II and III: concession for certain internal walls.

(a) each sole-occupancy unit concerned has direct egress to the ground or to an external balcony providing egress in two different directions from the building; and

(b) the sheeting of those walls, if not backed by concrete or masonry, is non-combustible.

(7) In a building containing two storeys and of Type 5 construction, fire walls shall be of concrete or masonry.

Fire walls.

(8) In a Class II or Class III building a partition wall required by Table 16.11 to have a fire-resistance rating shall extend –

Extent of certain partition walls.

(a) to the underside of the floor, if any next above; or

(b) to the underside of a ceiling having a resistance to the incipient spread of fire to the space above itself of not less than one hour, as determined in the Standard Fire Test; or

(c) to the underside of the roof covering, if it is non-combustible; or

(d) 450 mm above the adjoining roof covering if it is combustible; and in the case of paragraph (c) and (d) shall not be crossed by purlins or other combustible material.

(9) In a Class II or Class III building of Type 5 construction, the ceiling of the topmost storey shall be as specified in clause 16.12, except where all internal walls in that storey, required by Table 16.11 to have a fire-resistance rating, extend to the roof.

Buildings of Class II and III certain ceilings to be constructed in a specific way.

16.11 *(Cont)*

Buildings of Classes II, III and IX: certain parts to be covered with fire-protective material.

(10) In a Class II, III or IX building of Type 5 construction, the following, if combustible or of metal shall be covered with a fire protective material in accordance with clause 16.12:

(a) the underside of a floor (including the sides and undersides of its floor beams, if any) where the floor is above a storey, or above a space (not being a storey) that is designed, constructed, or adapted for –

(i) the accommodation of motor vehicles; or

(ii) the accommodation of bathrooms, shower rooms, laundries, water closets, or other sanitary compartments; or

(iii) for use as a work area; or

(iv) for storage or any other ancillary purpose thereto;

(b) a column supporting such a floor;

(c) the walls bounding such a space.

16.12 *Fire-protective covering of certain members in buildings of Classes II and III.*

The fire-protective covering or ceiling required by sub-clause (7) and (8) of clause 16.9 and sub-clause (9) and (10) of clause 16.11 for certain parts of Class II and Class III buildings of Type 3 or Type 5 construction shall be a lining or ceiling of –

(a) 12.7 mm plasterboard; or

(b) 12.7 mm asbestos-silica board; or

(c) 12.7 mm mesh-reinforced fibrous plaster in which the mesh is one of 12.7 mm x 12.7 mm x 0.71 mm welded wire located not more than 6 mm from the exposed face; or

(d) any other material not less fire-protective than 12.7 mm plasterboard;

the material in each case being of fire-protective grade and fixed in accordance with the normal trade practice applicable to the fixing of the material as a fire-protective covering.

16,13 *Construction of stairs and landings.*

Stairways required to be within fire-resisting shafts.

(1) In stairways that are required to be within fire-resisting shafts –

(a) the stairs and landings shall be constructed only of –

(i) reinforced or prestressed concrete in no part less than 75 mm thick, measured exclusive of topping; or

(ii) precast reinforced concrete, not prestressed, in no part less than 63 mm thick;

finished throughout in non-combustible material; and

(b) structural members, if any, supporting stairs or landings shall be non-combustible and have a fire-resistance rating of not less than one hour.

Class II buildings: stairways not required to be within fire-resisting shafts.

(2) In a Class II building having a rise of more than two storeys, the stairs and landings (including any supporting structural members) of a required stairway that is not required to be within a fire-resisting shaft shall –

16.13 (2) *(Cont)*

(a) be constructed according to sub-clause (1); or

(b) be constructed only of –

(i) reinforced or prestressed concrete; or

(ii) steel in no part less than 6.3 mm thick; or

(iii) timber that has not been glued or similarly joined and has an average density at a moisture content of 12 per cent of not less than 800 kg/m^3 and a finished thickness of not less than 44 mm.

16.14 Ramps and their landings, where required to be within fire-resisting shafts, shall – *Construction of ramps.*

(a) be non-combustible; and

(b) have a fire-resistance rating of not less than one hour.

16.15 (1) Where a building has sections of different classes – *Fire-resistance ratings of fire walls and floors common to two sections of a building.*

(a) the fire-resistance rating of a fire wall required between the sections (including a Class IV section, if any) shall be as follows –

(i) where the sections are served in any storey by the same public corridor, public hallway, or the like – 1½ hours in that storey; *When the sections are of different classes.*

(ii) in every other case – the fire-resistance rating prescribed in this Part for the fire wall of both sections (if those ratings are the same) or for the fire wall of that section for which the greater rating is prescribed (if those ratings are different); and

(b) a fire-resistance rating that applies according to clause 16.7 or clause 16.8 for a floor in the lower section (if one section is below the other) shall apply also for the floor between the sections.

(2) A fire wall required to bound a room designed, constructed, or adapted for the housing of equipment such as lift, heating, ventilating, or air-conditioning plant or transformers, generators, or other electrical equipment, or other special equipment for the servicing of the building, shall have a fire-resistance rating not less than the greater of – *When bounding a plant room.*

(a) 2 hours; and

(b) the rating for a fire wall prescribed in this Part for the particular class of the building in which the room is situated.

(3) Except in a Class I or X building, a room designed or constructed or adapted for the housing of equipment such as lift, heating, ventilating or air-conditioning plant or transformers, generators, or other electrical equipment, or other special equipment for the servicing of the building, shall – *Separation of plant rooms from other portions of buildings.*

16.15 (3) *(Cont)*

(i) be separated from any other portion of the building by a wall, floor or ceiling with a fire-resistance rating of 2 hours; and

(ii) all walls shall extend to the underside of the roof covering or roof slab, or the underside of a floor or ceiling; and

(iii) be sealed to the underside of the roof covering, slab, floor or ceiling with non-combustible material; and

(iv) no combustible part of the roof structure or other combustible material shall cross or penetrate through the required fire rated wall, floor, roof or ceiling.

16.16 *Mezzanine floors.*

Application of Part 16.

(1) The provisions of this Part relating to the construction of floors and any supporting columns shall, except as otherwise provided in this clause apply to the floor of a mezzanine and its supporting columns, if any.

Concessions for mezzanine of restricted area.

(2) Mezzanine floors and any columns supporting only those floors need not have a fire-resistance rating or be non-combustible if the following requirements are met:

(a) the area of the mezzanine floor shall not exceed 180 m^2 or one-third of the area of the room concerned, whichever is the lesser.

(b) if a room includes two or more mezzanines and the floors of those mezzanines are at or near the same level, the aggregate area of such floors shall not exceed 180 m^2 or one-third of the area of the room concerned, whichever is the lesser.

(c) every wall or column that supports any part of the building except the mezzanine floor or floors shall –

(i) if it is at any point within 6 m of the mezzanine floor or floors; and

(ii) if it is required elsewhere in this Part to have a fire-resistance rating;

have a fire-resistance rating of not less than one and one-third the rating otherwise required.

16.17 *Certain parts within ducts or wells to be specially constructed for fire-resistance.*

A beam, column, or other framing member –

(a) that passes through a duct or well within a shaft; and

(b) that is required to have a fire-resistant rating;

shall be of concrete, or be encased in concrete, and have a fire-resistance rating of not less than 2 hours.

16.18 *Buildings of Classes II and III: certain ceiling supports to be non-combustible.*

In a Class II or Class III building, a ceiling –

(a) above a public corridor, public hallway, or the like, or above a stairway or ramp that is required to be bounded by fire-resisting walls; and

16.18 *(Cont)*

(b) not forming an integral part of the floor, or roof next above, and not being a ceiling with a resistance to the incipient spread of fire to the space above itself of not less than one hour;

shall be non-combustible, and, if in a building of Type 1, or Type 2 construction, shall have only non-combustible supports.

16.19 Unless otherwise stated in this Manual, a combustible lining may be attached, inside a building, to a face of a structural member that is required –

Combustible internal lining.

(a) to have a fire-resistance rating; or

(b) to be non-combustible.

16.20 (1) For the purposes of this clause, clause 19.1 shall apply in determining the number of storeys a building contains.

Construction of certain external walls and steelworks.

Calculation of number of storeys contained.

(2) Where, in a building that contains one storey only, a steel column is incorporated in an external wall that is required to have a fire-resistance rating, the column need not have a fire-resistance rating.

Constructional concession: one storey.

Constructional requirements: more than one storey.

(3) Where, in a building that contains more than one storey, a steel column that supports a roof truss or beam at an external wall has either no fire-resistance rating or a rating that is less than that required for the wall –

(a) the truss or beam and the column shall be so constructed that in the event of fire they will not tend to overturn the wall; and

(b) the wall shall be so constructed that it does not at any time depend upon the column for support.

16.21 In a building required to be of Type 1 or Type 2 construction, materials, if any, attached to the outside face of an external wall, shall be non-combustible.

Ancillary construction at external walls.

16.22 A roof required by clause 16.7 to have a fire-resistance rating and to be non-combustible may be covered with built-up roofing consisting of successive layers of bitumen-impregnated, tar-impregnated, or similar roofing felt.

Roofing felt on a roof required to have a fire rating.

16.23 In a building of Type 1 or Type 2 construction, a roof, not complying with this Part as to fire-resisting construction, may be superimposed on a concrete-slab roof if –

Roof superimposed on concrete slab in Types 1 and 2 construction.

(a) the superimposed roof and any construction between it and the concrete slab roof are non-combustible throughout; and

(b) the concrete-slab roof complies with this Part as to fire-resisting construction.

16.24 A non-combustible structure situated on a roof and containing one or more of the following only –

Concession for certain structures situated on roofs.

(a) hot-water or other water tanks; or

(b) ventilating ductwork; or

(c) ventilating fans and their motors; or

(d) air-conditioning chillers; or

(e) window-cleaning equipment; or

(f) other service units that are non-combustible and do not contain combustible fluids; or

(g) lift equipment;

need not comply with the other provisions of this Part.

16.25 (1) Every lintel shall have the fire-resistance rating, if any, required for the part of the building in which it is situated, except as in sub-clause (2).

Lintels.

Where a fire-resistance rating is required.

(2) Steel angles, plates, or bars comprising lintels that span openings –

(a) in walls of buildings containing only one storey; or

(b) in non-loadbearing walls of Class II buildings; or

(c) not exceeding 3 m in width, and bridged by non-loadbearing masonry; or

(d) not exceeding 1.8 m in width, and bridged by loadbearing masonry, being part of a solid wall or part of one of the leaves of a cavity wall, the masonry in each case being not more than 150 mm in thickness;

shall not be subject to sub-clause (1) unless the lintels help to support fire doors or fire shutters.

16.26 The design of every method of attachment or installation –

Appurtenant construction not to impair fire-resistance performance.

(a) of a facing or finish to a part of a building required to have a fire-resistance rating; or

(b) of ducting or any other service to such a part;

shall provide for the attachment or installation to proceed without impairing the potential fire-resistance performance of that part.

16.27 (1) This clause applies to a building built over a public road, railway, bus terminal, or similar public facility.

Buildings above certain public facilities.

Facilities concerned.

(2) The fire-resistance rating of each structural member in, immediately above, or immediately alongside the public facility concerned shall be not less than the greater of –

Fire ratings required.

(a) 2 hours; or

(b) the fire-resistance rating required in other provisions of this part.

16.27 (3) *(Cont)* Any column or floor subject to sub-clause (2) shall be of reinforced or prestressed concrete, or structural steel encased in concrete. *Floor construction.*

16.28 (1) Construction at Boundaries: Class I and X

(a) Class I buildings – every external wall of a Class I building where permitted within 1 m of the site boundary shall have a fire-resistance rating of not less than 1 hour, and if external sheeting is used, such sheeting shall be non-combustible.

(b) Class X buildings – where an external wall of a Class X building which is permitted within 1 m of the site boundary, that external wall shall have a fire-resistance rating of not less than 1 hour, and if external sheeting is used, such sheeting shall be non-combustible.

(c) Party walls etc. in Class I and X buildings – party structures including party walls, shall have a fire-resistance rating of 3 hours where they separate:

(i) Class I or X buildings; and

(ii) Class I and X buildings.

(2) Extent of fire-rated external wall – where an external wall of a building is required by this clause to have a fire-resisting rating, that wall shall extend at least –

(a) to the underside of the roof covering; if it is non-combustible; or

(b) 450 mm above the roof covering if it is combustible, and shall not be crossed by timber purlins or other combustible material.

16.29 (1) Where a private garage is attached to a building of Class I, or IV, the garage shall be separated from the building by – *Garages attached to Class I buildings.*

(a) a wall extending to the underside of the roof covering and having a fire-resistance rating of one hour, where the garage is situated beside the building; and

(b) the floor over the garage having a fire-resistance rating of one hour for its full extent; or

(c) a wall extending to the underside of the floor over the garage – the wall and that portion of the floor over the garage having a fire-resistance rating of one hour where the garage is situated below the building;

(d) a doorway not more than 760 mm wide may be provided in the wall, whose sill is incombustible and is raised at least 50 mm above the garage floor. The doorway shall be fitted with a self-closing door having a fire-resistance rating of one hour or sheathed on each side with metal not less than 0.50 mm;

(e) the floor of all garages shall be of concrete or other hard incombustible material.

GROUP V – FIRE SAFETY AND FIRE RESISTANCE

Part 17 – Construction Required

17.1 *Rise in storeys. Definition.*

(1) For the purposes of this Manual, the "Rise" in storeys of a building means the number of storeys above the ground, calculated in accordance with the provisions of this Clause.

Determination.

(2) The greatest number of storeys in a building at any part of the external walls, counted above the finished ground adjacent to that part, shall be deemed to be the "rise" in storeys of the building.

Calculation where wall abuts a boundary of an adjoining allotment.

(3) When any part of an external wall abuts the boundary of an adjoining allotment of land, the natural ground level at the relevant part of the boundary shall be regarded as the finished ground in reckoning the number of storeys at the part of the wall concerned.

(4) Reserved.

17.1 *(Cont)*

(5) In counting the number of storeys above the finished ground at any part of an external wall, a storey shall be excluded from the reckoning if – *Certain storeys excluded from the reckoning.*

(a) it is situated at the top of the building and contains only heating, ventilating, lift or other equipment, water tanks, or similar service units; or

(b) it is situated partly below the finished ground against that part of the wall and extends not more than 1 m above the average level of that ground, the measurement being taken to –

(i) the underside of the ceiling; or

(ii) where there is no ceiling, the underside of the construction at the top of the storey;

except that, if the length of that part of the wall exceeds 12 m, the average level of the finished ground against it, used in the measurement, shall be the average for that 12 m section of its length where the ground is lowest.

(6) In calculating the "rise" in storeys of a building which incorporates one or more mezzanines – *Certain mezzanines to be regarded as storeys.*

(a) any mezzanine having a floor area of more than 180 m^2; and

(b) two or more mezzanines at or near the same level in a room and having an aggregate floor area of more than 180 m^2;

shall be regarded as a storey in that portion of the building in which they are situated.

(7) Any storey that has an internal height of more than 5.2 m shall be regarded as – *Certain high storeys to be regarded as two storeys.*

(a) one storey, if it is the only storey above the ground; or

(b) two storeys in any other case.

(8) The rise in storeys of a section of a building that is fire-separated according to Part 23 from the remainder of the building shall be determined as though the section were itself a building. *Determination of rise of a fire-separated section.*

17.2 (1) The type of fire-resisting construction required in a building of Class II, III, V, VI, VII, VIII, or IX – *Types of fire-resisting construction required.*

(a) except as conceded in clauses 17.4, 17.5 and 17.6 for certain Class II buildings, and in clause 17.8 for open-deck parting stations;

shall be that stated in the relevant column of Table 17.2.

Table 17.2

TYPE OF FIRE-RESISTING CONSTRUCTION REQUIRED.

<table>
<tr><td rowspan="2">Rise in Storeys</td><td colspan="9">Class of building</td></tr>
<tr><td>II</td><td>III</td><td>V</td><td>VI</td><td>VII</td><td>VIIIa</td><td>VIIIb</td><td>IXa</td><td>IXb</td></tr>
<tr><td>6 or more</td><td colspan="2" rowspan="4">Type 1</td><td colspan="7" rowspan="4">Type 1</td></tr>
<tr><td>5</td><td>Type 2</td></tr>
<tr><td>4</td><td>Type 2</td><td></td><td>Type 2</td><td>Type 2</td></tr>
<tr><td>3</td><td>Type 3</td><td>Type 2</td><td>Type 3</td><td>Type 3</td><td>Type 3</td></tr>
<tr><td>2</td><td>Type 3</td><td>Type 3</td><td>Type 5</td><td>Type 5</td><td>Type 5</td><td>Type 5</td><td>Type 5</td><td>Type 2</td><td>Type 3</td></tr>
<tr><td>1</td><td>Type 5</td><td>Type 5</td><td>Type 5</td><td>Type 5</td><td>Type 5</td><td>Type 5</td><td>Type 5</td><td>Type 5</td><td>Type 5</td></tr>
</table>

Fire-separated sections.

(2) A section of a building that is fire-separated according to Part 23 from the remainder of the building shall be subject to sub-clause (1) as though the section were itself a building.

Buildings of mixed classifications.

(3) In a building of mixed classifications, the type of fire-resisting construction required shall be of that type of construction that is the most fire-resistant of the types arising from the application of sub-clause (1) at each storey, based on the assumptions that –

(a) a classification applying to the particular storey applies also to the storeys vertically below it; and

(b) the particular storey and those vertically below it comprise an entire building.

17.3 *Lightweight construction.*

Definition.

(1) For the purposes of this clause, "lightweight construction" means –

(a) that variety of fire-resisting construction in which the construction affording fire protection –

(i) is not in continuous contact with the principal construction that it fire-protects; or

(ii) is of sheet or board material, plaster, render, sprayed application, or other material similarly susceptible to damage by pressure or abrasion; and

(b) that variety of fire-resisting construction which incorporates or comprises –

17.3 (1) (b) *(Cont)*

(i) concrete containing pumice, perlite, vermiculite, or other soft material; or

(ii) masonry having a measured thickness of less than 70 mm.

Restrictions on the use on lightweight construction.

(2) Subject to sub-clause (3), in a building having a rise exceeding four storeys; a beam or column, or a wall required to have a fire-resistance rating, not being a partition wall, shall not incorporate or be of lightweight construction if it is in –

(a) any Class VI, VII, or VIII portion; or

(b) any portion, regardless of its classification, that is below the level of a Class VI, VII, or VIII portion.

Where the restrictions do not apply.

(3) Sub-clause (2) shall not apply where any Class VI portion concerned is designed, constructed, or adapted for use as –

(a) a cafe or restaurant; or

(b) a tea room, coffee room, or milk or soft-drink bar; or

(c) a hairdresser's or barber's shop; or

(d) a shop of any other kind, the normal functioning and servicing of which would not, represent undue risk of damage to the lightweight construction of any beam, column, or wall.

Type of fire-resisting construction required in certain Class II buildings.

17.4 (1) A building that is entirely of Class 2 shall be subject to sub-clause (2), instead of clause 17.2, if it is so designed that –

(a) no part of any flat is vertically above any part of another flat; and

(b) the floor between each flat and any garage below is constructed in reinforced or prestressed concrete.

Description and location of buildings.

Type of construction required.

(2) The type of fire-resisting construction required in a building referred to in sub-clause (1) shall be as follows, according to the greatest number of storeys contained in any flat, and irrespective of its rise in storeys –

(a) For three storeys contained ... ...Type 2

(b) For one or two storeys contained... ... ...Type 5

Buildings of Classes II and III having a rise of two storeys: concession as to type of construction.

17.5 A Class II or Classs III building having a rise of two storeys may be of type 5 construction if it complies with the special provisions of Part 24 as to means of egress from sole-occupancy units in such a building.

17.6 *Existing buildings converted from Class I to Class II.*

(1) Where the conversion of an existing building from Class I to Class II is approved, the converted building shall be of that type of fire-resisting construction stated in the relevant column of Table 17.2, subject to the concession of clauses 17.4 or 17.5, if applicable, and to the concession for external walls set out in sub-clause (2) of this clause. *Type of construction required.*

(2) The external walls of a building described in sub-clause (1) shall not be required to have a fire-resistance rating or be non-combustible if the building – *Concession for external walls in certain buildings.*

(a) is not in a fire zone; and

(b) contains not more than two storeys.

17.7 *Requirements for Class IV portions of buildings.*

A Class IV portion of a building shall be of that type of fire-resisting construction required for the building of which it is a part.

17.8 *Class VII – open-deck parking stations: concession as to type of construction.*

An open-deck parking station need not comply with the other requirements of this part if –

(a) it contains not more than three storeys; and

(b) it is of Type 4 construction in which –

(i) the floors are of concrete; and

(ii) all the columns and floor beams are of steel or concrete;

(iii) all other structural members are non-combustible.

GROUP V – FIRE SAFETY AND FIRE RESISTANCE

Part 18 – Reserved.

GROUP V – FIRE SAFETY AND FIRE RESISTANCE

Part 19 – Floor-area Limitations.

19.1 *Interpretative provisions.*

(1) In this Part, the number of storeys contained in a building shall be deemed not to include a storey situated at the top of the building and containing only heating, ventilating, lift or other equipment, water tanks, or similar service units and the floor area of such a storey shall not be taken into account for the purposes of this Part.

Certain storeys deemed to be excluded from calculations.

Class VII and Class VIII buildings of partly one and partly two storeys.

(2) For the purposes of this Part, a Class VII or Class VIII building shall be deemed to contain only one storey if –

(a) it contains two storeys in one or more portions and only one storey in the remainder of the building; and

(b) the sum of the floor areas of the storeys in the portion or portions containing two storeys does not exceed one-fourth of the floor area of the remainder of the building.

19.2 *General floor-area limitations.*

(1) This clause applies to Class V, VI, VII, VIII and IX buildings of Type 2, 3, 4 or 5 construction, subject to the exemptions permissible under clauses 19.3 and 19.4 in regard to certain buildings containing only one storey.

Application of clause.

Limitations on total floor area.

(2) In a building to which this clause applies, the sum of the floor area of all storeys shall not (subject to sub-clause (3)) exceed the relevant maximum floor area set out in Table 19.2.

Limitations to apply to individual stores in certain cases.

(3) In a building containing two or more storeys, the relevant maximum floor area set out in Table 19.2 shall apply to each storey, instead of the sum of all storeys, if –

(a) every floor (including its vertical supports) between the storeys has a fire-resistance rating of not less than 2 hours;

(b) the storeys are not interconnected by escalators;

(c) every lift well, stairway, or ramp is bounded by a shaft that has a fire-resistance rating of not less than two hours; and

(d) the external walls, in a building of Type 4 or Type 5 construction, are of concrete or masonry; and

(e) where there is a stairway or ramp connecting a floor of a mezzanine with the floor of the room in which it is situated, that stairway or ramp shall not be required to comply with sub-clause (c) of this clause.

Fire-separated sections of a storey.

(4) Where a storey is divided into sections by fire walls, the following rules shall apply:

(a) if the building contains only one storey, the relevant maximum floor area set out in Table 19.2 shall apply to each such section as though it were a complete building;

19.2 (4) *(Cont)*

(b) if the building contains two or more storeys and complies with sub-clause (3), the relevant maximum floor area set out in Table 19.2 shall apply to each such section as though it were a complete storey.

Table 19.2

MAXIMUM FLOOR AREAS ACCORDING TO TYPE OF FIRE-RESISTING CONSTRUCTION, CLASSIFICATION, AND WHETHER OR NOT A SPRINKLER SYSTEM IS INSTALLED.
(in square metres)

In this Table, the maximum floor areas apply to –

(a) the total floor area throughout a single or multi-storey building; or

(b) the floor areas of each storey of a building if the provisions of sub-clause (3) of clause 19.2 are met.

Type of fire-resisting construction of building.	Class V		Class VI	
	Not sprinklered	Sprinklered	Not sprinklered	Sprinklered
Type 2	5500	9000	3500	5500
Type 3	5500	9000	3500	5500
Type 4	4500	7500	3000	4500
Type 5	2800	4500	2000	2800
	Class VII			
	For storage or display of goods not referred to in First Schedule. (Medium or low hazard)		For storage or display of goods referred to in First Schedule. (High hazard)	
	Not sprinklered	Sprinklered	Not sprinklered	Sprinklered
Type 2	5500	9000	3500	5500
Type 3	5500	9000	3500	5500
Type 4	4500	7500	3000	4500
Type 5	2800	4500	2000	2800
	Class VIIIa (Medium or low hazard)		Class VIIIb (High hazard)	
	Not sprinklered	Sprinklered	Not sprinklered	Sprinklered
Type 2	5500	9000	3500	5500
Type 3	5500	9000	3500	5500
Type 4	4500	7500	3000	4500
Type 5	2800	4500	2000	2800

19.3 *Exemption for single-storey buildings not exceeding 18 000 m² in area.*

A building containing only one storey and having a floor area not exceeding 18 000 m² shall not be subject to the floor-area limitations specified in clause 19.2 if –

(a) an open space, not less than 18 m in width, is provided on or associated with the site of the building in accordance with clause 19.5; or

(b) the building is of Type 2 or Type 3 construction and complies with the following requirements:

(i) the space below the roof shall be divided into compartments in accordance with clause 19.6;

(ii) the building shall be provided with approved automatic smoke-and-heat vents in accordance with clause 19.7;

(iii) every external wall facing the boundary of an adjoining allotment of land shall be provided with a parapet in accordance with clause 19.8, except where the provisions of that clause permit the height of the parapet to be reduced to nil; and

(iv) windows and other openings in every external wall facing the boundary of an adjoining allotment of land shall be so limited in area as to comply with clause 19.9

19.4 *Exemption for single-storey Class VI, VII, and VIII buildings exceeding 18 000 m² in area.*

(1) A Class VI, VII, or VIII building containing only one storey and having a floor area exceeding 18 000 m² shall not be subject to the floor-area limitations specified in clause 19.2 if –

(a) an open space, not less than 24 m in width, is provided on or associated with the site of the building in accordance with clause 19.5; or

General conditions of exemption.

(b) the building is of Type 2 or Type 3 construction and complies with the following requirements:

(i) the space below the roof shall be divided into compartments in accordance with clause 19.6;

(ii) the building shall be provided with approved automatic smoke-and-heat vents in accordance with Clause 19.7;

(iii) every external wall facing the boundary of an adjoining allotment of land shall be provided with a parapet in accordance with clause 19.8, except where the provisions of that clause permit the height of the parapet to be reduced to nil;

(iv) windows and other openings in every external wall facing the boundary of an adjoining allotment of land shall be so limited in area as to comply with clause 19.9; and

(v) an approved sprinkler system shall be installed throughout the building.

19.4 (Cont) (2) In determining whether sub-clause (1) is applicable, all Class VI, VII, or VIII buildings on the one allotment of land that are within 27 m of each other shall be deemed to be the one building, except in a case where – *Two or more.*

(a) the external walls facing each other in the buildings concerned –

(i) have a fire-resistance rating of not less than 2 hours; and

(ii) are non-combustible; and

(b) each such wall complies with Clause 19.8 and Clause 19.9 as though the buildings were on different allotments, with an imaginary boundary line in a position nominated by the person on whose behalf the building is being erected.

19.5 An open space required by this Part to be provided on or associated with the site of a building – *Requirements for open spaces around large single-storey buildings.*

(a) shall, except as conceded in paragraph (c), be contiguous with or straddle all the boundaries of the site, as the case requires, and shall include any road, street or public place adjoining the site, but not the farthest 6 m thereof;

(b) shall not include any part of an adjoining allotment of land not being a road, street, or public place;

(c) shall not in any part be built upon or designed for the storage or processing of materials, or any like purpose, except that guard house and service buildings (such as substations and pump houses) may encroach upon the width of the space of the encroachment, if the Commission is satisfied that the encroachment –

(i) should not unduly impede fire fighting at any part of the perimeter of the site; and

(ii) should not unduly add to the risk of spread of fire to an adjoining allotment of land.

19.6 In a building required to have the space below the roof divided into compartments, the following requirements shall be met: *Draught curtains, vertical glazing, and smoke-and-heat compartments.*

(a) the compartments shall be formed by –

(i) vertical, non-combustible, non-shattering, draught curtains (including asbestos silica board and excluding asbestos cement board) hung from the roof structure; or

(ii) the use of a saw-tooth roof in which the vertical sections of the "saw-tooth" comprise non-combustible, non-shattering material, or wired glass not less than 6.3 mm thick;

(b) the foregoing curtains or vertical roof sections shall extend from the roof sheeting to a level not less than 1.5 m below the lowest part of the opening, to the outside air, of the lowest required smoke-and-heat vent;

19.6 *(Cont)*

(c) the holes through which any non-metallic curtains are fixed shall not be less than 10 mm in diameter oversize, and shall be so located as to allow expansion of the curtains in the event of fire within the building;

(d) none of the compartments so formed shall exceed 1000 m^2 in area, measured in a horizontal plane;

(e) in spaces of abnormal fire hazard specified in the First Schedule –

(i) the horizontal distances between the foregoing curtains or vertical roof sections; and

(ii) the horizontal distance between any external wall and the curtain or glazing, if any, nearest to it;

shall not exceed 30 m;

(f) a ceiling or like construction shall not be used in or below any such compartment.

19.7 *Smoke-and-heat vents.*

Definition.

(1) In this Part, "smoke-and-heat vent" means a vent located in or near the roof of a building, to provide means for the escape of smoke and hot gases if there is an outbreak of fire in the building.

Requirements.

(2) In a building required to have approved automatic smoke-and-heat vents, the following requirements shall be met:

(a) each of the compartments below the roof and separated by the curtains or vertical roof sections described in clause 19.6 shall have one or more approved automatic smoke-and-heat vents.

(b) the automatic opening of the vents, if a sprinkler system is installed, shall be set for a temperature not less than 5° on the Celsius scale above that at which the sprinkler system is set to operate.

(c) the aggregate airway of vent openings in each compartment shall bear not less than the following ratio to the area of the compartment:

(i) where the space vertically below the compartment is or includes a space of abnormal fire hazard specified in the First Schedule 3:100;

(ii) in all other cases ... ... 3.200.

19.8 *Parapets.*

Height requirements.

(1) A parapet required by this Part to be provided on an external wall shall, subject to sub-clause (2), have a height not less than set out in the second column of Table 19.9, according to –

(a) the distance of the wall from the boundary of the adjoining allotment of land it faces; and

(b) the aggregate area of windows and other openings to be used below the parapet.

(2) The height of parapet required by Table 19.9 may be reduced by an amount equal to one-third the distance to which a concrete or other non-combustible roof extends into the building from the external wall concerned if – *Concession in height of parapet.*

(a) the fire-resistance rating of the section of the roof extending in from the external wall is not less than one hour; and

(b) the supports of the roof section concerned are non-combustible and have a fire-resistance rating of not less than one hour.

(3) The fire resistance rating of a parapet required by the provisions of clause 19.3 or of clause 19.4 shall not be less than the fire resistance rating required for the wall it surmounts. *Fire resistance of parapets.*

19.9 In an external wall in which the windows and other openings are required by this Part to be limited in area, their aggregate area shall not exceed the maximum permissible aggregate area of windows and other openings stated in Table 19.9, according to the distance of the wall from the boundary of the adjoining allotment of land it faces. *Limitations on areas of window openings.*

Table 19.9

MAXIMUM PERMISSIBLE AGGREGATE AREAS OF WINDOWS AND OTHER OPENINGS

Distance of wall from boundary. (metres)	Height of parapet (metres)	Maximum permissible aggregate area of openings (square metres)
Less than 1.5	1.5	Nil
1.5 to less than 2	1	Nil
	1.25	0.5 in any 2 m length of wall
	1.5	1 in any 2 m length of wall
2 to less than 3	0.75	Nil
	1	0.5 in any 3 m length of wall
	1.25	1 in any 3 m length of wall
	1.5	2 in any.3 m length of wall
3 to less than 4.5	0.5	Nil
	0.75	1 in any 4 m length of wall
	1	2 in any 4 m length of wall
	1.25	3 in any 4 m length of wall
	1.5	4 in any 4 m length of wall
4.5 to less than 6	Nil	Nil
	0.25	1.5 in any 5 m length of wall
	0.5	3 in any 5 m length of wall
	0.75	4 in any 5 m length of wall
	1	5 in any 5 m length of wall
	1.25	6.5 in any 5 m length of wall
	1.5	7.5 in any 5 m length of wall
6 to less than 7.5	Nil	4 in any 7 m length of wall
	0.25	5 in any 7 m length of wall
	0.5	7 in any 7 m length of wall
	0.75	9 in any 7 m length of wall
	1	10.5 in any 7 m length of wall
	1.25	12.5 in any 7 m length of wall
	1.5	14 in any 7 m length of wall
7.5 to less than 9	Nil	9 in any 9 m length of wall
	0.25	11.5 in any 9 m length of wall
	0.5	13.5 in any 9 m length of wall
	0.75	16 in any 9 m length of wall
	1	18.5 in any 9 m length of wall
9 to less than 10.5	Nil	17 in any 11 m length of wall
	0.25	19.5 in any 11 m length of wall
	0.5	22.5 in any 11 m length of wall
10.5 to less than 13.5	Nil	30.5 in any 15 m length of wall
13.5 to less than 18	Nil	45.5 in any 18 m length of wall
18 and over	Nil	No limitation.

19.10 (1) A Class VII building (erected before or after the commencement of this Manual) that is not being used for the storage or display of –

Change of use of existing Class VII and Class VIII buildings.

(a) goods referred to in the First Schedule; or

(b) combustible goods of any kind;

Certain uses associated with Class VII .

shall not be so used unless the building complies with the relevant requirements of this Part.

(2) A Class VIII building (erected before or after the commencement of this Manual) that is not being used for a handicraft or process –

Certain uses associated with Class VIII.

(a) referred to in the First Schedule; or

(b) in which a principal material of any kind is combustible;

shall not be so used unless the building complies with the relevant requirements of this Part.

19.11 (1) A Class VII or Class VIII building may be exempted from the requirements of this Part, if all of the materials stored or displayed, or used in a handicraft or process therein, are non-combustible.

Exemption of certain Class VII and Class VIII buildings from requirements of this Part.

(2) A building erected before or after the commencement of this Manual, to which sub-clause (1) does not apply, provided that satisfactory provisions, alternative to those of Part 19, and additional to those prescribed by Part 27, have been made to restrict or combat the spread of fire.

Buildings for storage, display or processing of non-combustible materials.

(3) An exemption pursuant to sub-clause (2) shall be granted only by the Commission –

Conditions in granting exemptions under sub-regulation (2).

(a) in the particular case;

(b) having regard to the purposes for which the building is intended or adapted to be used.

19.12 (1) This clause shall apply, irrespective of any other provision of this Part, to any Class V, VI, VII, or VIII building of Type 1, 2, 3, 4 or 5 construction where –

Special provisions for certain buildings.

(a) the total floor area throughout the building exceeds 36 000 m^2 ; or

Buildings concerned.

(b) irrespective of total floor area, that special provisions have been made in a particular building to restrict or combat the spread of fire.

(2) Special requirements for restricting or combating the spread of fire may be imposed by the Commission.

Special requirements may be imposed.

(3) Any special requirement pursuant to sub-clause (2) shall –

Conditions in imposing special requirements.

(a) be imposed only by reason of the purposes for which the building is intended or adapted to be used; and

(b) be additional to the relevant requirements of this Part, except that exemptions may be granted from on or more of those requirements.

GROUP V – FIRE SAFETY AND FIRE RESISTANCE

Part 20 – Fire Resistances of Structural Members

20.1 Where a structural member of a building is required to have a fire-resistance rating, the structural member shall be –

Fire-resistance ratings: method of establishment.

(a) one that is deemed, pursuant to clause 20.10 to have the required fire-resistance rating; or

(b) one that is identical with a prototype that has been submitted to –

(i) the Standard Fire Test; or

(ii) a test that is similar to the Standard Fire Test, and is shown by documentary evidence in the form of a report, as referred to in clause 20.2, to have achieved the required fire-resistance rating; or

(c) one that is identical with a tested prototype as specified in paragraph (b), except for the variations permissible under clause 20.3 or 20.4, as the case may be.

20.2 (1) The report referred to in paragraph (b) of clause 20.1 shall be an official report issued by one of the following testing authorities:

Documentary evidence of fire-resistance ratings.

Form of evidence.

(a) Experimental Building Station, Department of Housing & Construction;

(b) Fire Research Station, Building Research Establishment: Department of the Environment, Great Britain;

(c) National Bureau of Standards, United States of America;

(d) Underwriters' Laboratories Incorporated, United States of America;

(e) National Research Council, Canada; and

(f) Underwriters' Laboratories of Canada.

Details of report.

(2) The report shall fully describe the conditions of the test, and the form of construction of the tested prototype.

Conditions of acceptance of report.

(3) Where a report issued pursuant to sub-clause (1) indicates that the tested prototype was subjected to restraints applied by direct compression, or compression forces developed as a result of the inability of the tested prototype to expand thermally because of the nature of its supports and its position during the tests, the following conditions shall apply:

(a) in the case of a deck or floor the report shall not be acceptable for the purposes of this Part.

(b) in the case of a steel beam, open-web joist or column the report shall certify that the temperature of the steel in the tested prototype did not exceed –

(i) 538°C average; and

(ii) 649°C maximum.

20.2 *(Cont)* (4) The method of restraint may differ from that of the tested prototype, if calculations according to clause 20.3 are submitted and approved by the Commission.

Variation permitted to method of restraint.

(5) A copy of the official report referred to in this clause shall be submitted by the person for whom the building is being erected but this requirement may be waived if a copy of the report is already possessed by the Commission.

Submission of report.

20.3 (1) Where the structural member is a floor, roof or beam of steel or reinforced concrete (other than prestressed concrete), it may be of longer or shorter span than that of the prototype if evidence is produced to show that the following conditions will be met:

Variation in span of certain members.

Conditions of acceptance.

(a) the calculated stresses at the centre of the span of the structural member under the total dead and live load shall not exceed those in the centre of the span of the construction referred to in the official test report;

(b) the calculated tensile stress in steel in the structural member shall not be greater at the centre of the span under the total dead and live load than –

(i) 100 per cent of the design tensile stress in the steel referred to in the official test report, where the average temperature of the steel measured in accordance with the requirements of the Standard Fire Test does not exceed 528°C; or

(ii) 70 per cent of that stress, where the average temperature of the steel so measured is 593°C; or

(iii) between 100 and 70 per cent of that stress on a proportionally interpolated basis, where the average temperature of the steel so measured is between 538°C and 593°C;

(c) a negative bending moment, if any, at either end of the span, if additional to a negative bending moment referred to in the official test report –

(i) may be taken into account in the calculations; but

(ii) shall not be deemed to relieve the central bending moment by more than one-tenth thereof;

and two such negative bending moments, one at each end of the span, may be so taken into account in the calculations but collectively shall not be deemed to relieve the central bending moment by more than one-fifth;

(d) if the tested prototype contained a feature which produced a negative bending moment during the relevant fire-resistance test, that feature shall be repeated in the structural member proposed to be used.

(e) if a condition of horizontal restraint was introduced during the relevant fire-resistance test of the tested prototype, the

20.3 (1) (e) (Cont) structural member proposed to be used shall be designed to compensate for that condition.

Evidence of compliance with conditions.

(2) The evidence referred to in sub-clause (1) shall be in the form of a report and calculations prepared by a practising structural engineer.

20.4 *Variations in columns.*

A steel column may vary from the size of the tested prototype if –

(a) its cross-sectional profile is similar to that of the tested prototype; and

(b) its slenderness ratio and ratio of surface area to mass per unit of length are not greater than those of the tested prototype.

20.5 *Minor variations from prototype.*

(1) Where a structural member that is required to have a fire-resistance rating –

(a) is not deemed, pursuant to clause 20.10, to have that rating; and

(b) departs in some minor degree from the tested prototype but in a manner other than that permissible under clause 20.3 or clause 20.4;

its use may be approved upon production of a report in accordance with sub-clause (2).

Reports from specified authorities.

(2) For the purposes of sub-clause (1), the report shall be in the following terms from one or other of the authorities indicated, whichever is appropriate in the particular case:

(a) a testing authority registered with the National Association of Testing Authorities, certifying that the materials incorporated in the structural member have physical and chemical properties that are identical with those of the materials –

(i) incorporated in a tested prototype that has achieved the required fire-resistance rating; and

(ii) described in the relevant report of that test;

(b) one of the authorities listed in clause 20.2 –

(i) certifying that, in the opinion of the authority concerned, the proposed construction would, despite the minor departures from a tested prototype, be capable of achieving the required fire-resistance rating if submitted to the Standard Fire Test; and

(ii) giving details of materials, construction, and methods of restraint or support which must be complied with to achieve the required fire-resistance rating.

20.6 *Dimensions of materials and components.*

Where dimensions of components or materials are stated in this Part they are minimum acceptable dimensions and shall be calculated according to the following:

20.6 *(Cont)*

(a) the required dimensions for –

(i) burnt-clay and burnt-shale brickwork;

(ii) sand-lime brickwork;

(iii) solid concrete blockwork; and

(iv) timber;

are, unless otherwise stated to the contrary, nominal dimensions subject to normal trade tolerances.

(b) where hollow concrete blocks are permitted according to Table 20.10 their required thickness shall be calculated according to the rules set out in the annexure to that Table.

(c) for materials not referred to in paragraphs (a) and (b) the required dimensions are actual measured dimensions subject to normal trade tolerances.

20.7 (1) A fire-resistance rating achieved when using any material of Group A, B, C, D, or E, set out below in this clause as an ingredient in concrete or plaster, shall be deemed to apply equally when any other material of the same group is used in the same proportions in concrete or plaster.

Certain materials inter-changeable.

In concrete and plaster.

Group A: Any portland cement.
Group B: Any lime.
Group C: Any dense sand.
Group D: Any dense calcareous aggregate, including any limestone or any calcareous gravel.
Group E: Any dense siliceous aggregate, including any basalt, diorite, dolorite, granite, grano-diorite, or trachyte.

(2) A fire-resistance rating achieved when using gypsum-perlite plaster or gypsum-vermiculite plaster shall be deemed to apply equally for both gypsum-perlite and gypsum-vermiculite plasters.

Perlite and vermiculite.

20.8 (1) If a structural member is required to have a fire-resistance rating and it incorporates any of the materials mentioned in this clause, their uses shall be subject to such of the requirements herein as the case requires.

Certain materials to meet special requirements.

Application of clause.

(2) Bricks, terra-cotta blocks, and concrete blocks shall be laid in cement mortar or composition mortar and such mortars shall comply with the relevant provisions of Part 28.

Bricks and certain blocks.

(3) Gypsum blocks shall be laid in gypsum-sand mortar or lime mortar.

Gypsum blocks.

(4) Gypsum-sand mortar and gypsum-sand plaster –

Gypsum-sand mortar and plaster.

(a) shall consist of not more than 3 parts by volume of sand to 1 part by volume of gypsum; or

(b) shall consist of not more than 2½ parts by volume of sand

20.8 (4) (b) *(Cont)*

to 1 part by volume of gypsum, if lime putty is added, in which case the lime putty shall not exceed 5 per cent by volume of the mixed ingredients.

Plaster of cement and sand, or cement, lime and sand.

(5) Where plaster is prescribed in Table 20.10 the plaster –

(a) shall consist of –

(i) cement and sand; or

(ii) cement, lime and sand;

having a thickness not less than that shown in the Table; and

(b) may be finished with gypsum, gypsum-sand, gypsum-perlite or gypsum-vermiculite plaster, or with lime putty.

Gypsum-perlite and gypsum-vermiculite plaster.

(6) Where gypsum-vermiculite or gypsum-perlite plaster is prescribed in Table 20.10 the plaster –

(a) shall have a thickness not less than that shown in the Table; and shall conform with the following:

(i) where the required thickness is less than 25 mm the plaster shall be applied in either one or two coats each consisting of material in the proportion of 1 m^3 of perlite or vermiculite to 640 kg of gypsum.

(ii) where the required thickness is more than 25 mm the plaster shall be applied in two coats, the first of which shall consist of material in the proportions of 1 m^3 of perlite or vermiculite to 800 kg of gypsum and the second of which shall consist of material in the proportions of 1 m^3 of perlite or vermiculite to 530 kg of gypsum.

Gypsum for plaster or mortar.

(7) In this Part, "gypsum", in relation to a plaster mix or mortar, means plaster-of-paris or any similar material derived from gypsum and used as an ingredient in plaster or mortar.

Reinforcement.

(8) Where expanded metal lath is required as a reinforcement for plaster, or as a base for plaster or sprayed application, it shall –

(a) have a mass per unit area of not less than 1.84 kg/m^2;

(b) have not less than 98 meshes/m; and

(c) be protected against corrosion by galvanising or other approved method.

Plaster reinforcement.

(9) Where plaster used as a fire-protective material has a thickness exceeding 19 mm, the plaster shall be reinforced with –

(a) expanded metal lath complying with sub-clause (8); or

(b) 12.7 mm x 12.7 mm x 0.71 mm galvanised steel wire mesh;

the reinforcement being securely fixed to the wall and positioned at a distance from the face of the wall concerned of not less than one-third of the total thickness of the plaster.

20.9 (1) The fire-protective covering of a steel column, shall be protected by metal or other suitable materials, if the column is liable to damage from the movement of vehicles, materials, or equipment, or any like cause.

Column coverings.

Protection against injury generally.

(2) In addition to sub-clause (1) where any such covering so subject to injury is not in continuous contact with the column, the voids concerned shall be filled solid, with approved non-combustible materials, to a height of not less than 1200 mm above each floor.

Protection against indenting of light-weight construction.

(3) Where –

(a) a steel column extends through two or more storeys; and

(b) its fire-protective covering is not in continuous contact with it;

a plug of approved non-combustible fire-protective material shall be inserted at each floor to seal all voids at those floor levels, including the voids between the column and its fire-protective covering.

Sealing at floor level in certain light-weight construction.

(4) A blank space in any of the columns 3 to 7 in Table 20.10 indicates that –

(a) the relevant construction has not achieved the particular fire-resistance rating concerned; or

(b) the relevant construction has not been tested to achieve the particular fire-resistance rating concerned.

Construction not tested or not complying.

(5) Where a particular type and thickness of construction is deemed to have a particular fire-resistance rating that construction shall be deemed to satisfy any requirement for a lower fire-resistance rating.

Fire-resistance rating deemed to satisfy lesser requirements.

20.10 (1) A structural member of reinforced concrete in which –

(a) the cross-sectional dimensions of the member are not less than those given in Appendix B of Australian Standard CA2, "SAA Code for Concrete in Buildings" (according, where relevant, to the loads to be supported by the member); and

(b) the types and thicknesses of the fire-protective concrete or other material used therein are in accordance with those given in that Appendix;

shall be deemed to have the relevant fire-resistance rating set out in that Appendix.

Certain structural members deemed to have specific fire-resistance ratings.

Reinforced concrete.

(2) A structural member of prestressed concrete in which –

(a) the cross-sectional dimensions of the member are not less than those given in Australian Standard CA35 "SAA Prestressed Concrete Code" (according, where relevant, to the loads to be supported by the member); and

Prestressed concrete.

20.10 (2) *(Cont)*

(b) the types and thicknesses of the fire-protective concrete or other material used therein are in accordance with those given in that Standard;

shall be deemed to have the relevant fire-resistance rating set out in that Standard.

(3) A structural member listed in column 1 of Table 20.10 in which the construction incorporates a material or combination of materials listed opposite thereto in column 2, shall be deemed to have the fire-resistance rating at the head of column 3, 4, 5, 6 or 7, as the case may be if –

(a) the principal material has the thickness, if any, listed in the relevant column;

(b) the construction meets the conditions or requirements set out in the numbered notes, if any, listed opposite thereto in column 8 and included in the annexure to the Table; and

(c) the construction meets all other relevant requirements of this Manual.

Table 20.10

FIRE-RESISTANCE RATINGS DEEMED TO APPLY TO CERTAIN STRUCTURAL MEMBERS.

Figures appearing in columns 3, 4, 5, 6, and 7 denote thicknesses in millimetres of materials, and are the thicknesses of the principal material of construction measured according to Clause 20.6.

Column 1	Column 2	Col. 3	Col. 4	Col. 5	Col. 6	Col. 7	Column 8
Structural member	Construction of member	Thickness of principal material (millimetres)					Annexure reference—clause number
		1 hr	1½ hr	2 hr	3 hr	4 hr	
Loadbearing walls whether internal or external, and common and party walls whether loadbearing or non-loadbearing	Solid walls and cavity walls, excluding the width of the cavity—						
	Ashlar stone masonry	. .	. .	. .	. .	300	1
	Solid pressed clay bricks	. .	110	. .	. .	230	2
	Solid concrete blocks and concrete bricks	. .	127	150	177	200	2
	Concrete—						
	Unreinforced	. .	. .	. .	177	200	. .
	Reinforced	Refer to sub-clause (1) of clause 20.10.					
	Prestressed	Refer to sub-clause (2) of clause 20.10.					
Non-loadbearing walls whether internal or external (except common and party walls—see above).	Solid walls and cavity walls, excluding the width of the cavity—						
	Ashlar stone masonry	. .	. .	. .	. .	300	1
	Extruded, cored or lattice clay bricks—						
	Unplastered	100	110	139	. .	200	3
	Plastered 19 mm thick on both sides	. .	. .	110	150	. .	3, 6
	Solid pressed clay and calcium-silicate bricks—						
	Unplastered	. .	110	. .	. .	190	. .
	Plastered 19 mm thick on both sides	. .	. .	110	. .	. .	6
	Solid concrete blocks and concrete bricks	100	127	150	177	200	. .
	Cavity wall—						
	230 mm cavity wall—						
	One leaf of solid clay brick on flat and one leaf solid clay brick on edge	. .	. .	. .	. .	190	4
	250 mm cavity wall—						
	One leaf of solid clay brick and one leaf of concrete block stretcher units	. .	. .	. .	. .	200	5
	Concrete—						
	Unreinforced	. .	. .	. .	177	200	. .
	No-fines, plastered 19 mm thick on both sides	. .	. .	. .	150	. .	6
	Reinforced	Refer to sub-clause (1) of clause 20.10.					
	Prestressed	Refer to sub-clause (2) of clause 20.10.					

Table 20.10 – *continued.*

FIRE-RESISTANCE RATINGS DEEMED TO APPLY TO CERTAIN STRUCTURAL MEMBERS – *continued.*

Column 1	Column 2	Col. 3	Col. 4	Col. 5	Col. 6	Col. 7	Column 8
Structural member	Construction of member	Thickness of principal material (millimetres)					Annexure reference–clause number
		1 hr	1½ hr	2 hr	3 hr	4 hr	
Non-loadbearing walls whether internal or external (except common and party walls–see above)–*continued.*	Hollow blocks of concrete with–						
	Category A aggregate	66	83	96	119	142	7, 8
	Category B aggregate	73	93	109	134	157	7, 8
	Category C aggregate	82	101	121	149	172	7, 8
	Terra-cotta–						
	Plastered 19 mm thick one side	150	. .	. .	. .	. .	6, 9
	Plastered 19 mm thick on both sides	100	150	. .	. .	. .	6, 9
	Solid gypsum blocks	75	88	100	110	127	. .
	Gypsum-perlite or gypsum-vermiculite plaster on metal lath and channels	. .	51	63	. .	. .	10
Steel columns and pipe columns.	Columns incorporated in, or in contact on one or more sides with solid masonry or concrete walls not less than 100 mm thick, with fire protection of–						
	Solid clay bricks with–						
	Column spaces filled	50	50	50	50	63	11, 12
	Column spaces not filled	50	50	50	. .	. .	11
	Solid concrete blocks with–						
	Column spaces filled	50	50	50	63	88	11, 12
	Column spaces not filled	50	50	63	. .	. .	11
	Gypsum blocks laid in gypsum-sand mortar with–						
	Column spaces filled	. .	. .	50	63	88	11, 12
	Column spaces not filled	. .	. .	50	. .	. .	11
	Hollow terra-cotta blocks plastered 13 mm thick with–						
	Column spaces filled	. .	. .	50	63	88	9, 11, 12
	Column spaces not filled	. .	. .	50	. .	. .	9, 11
	Structural concrete cast in-situ around mesh or binding, and non-loadbearing	25	32	38	51	63	11, 12, 13
	As above, plastered 13 mm thick	. .	25	32	38	51	6, 11, 12, 13
	Columns incorporated in, or in contact on one or more sides with solid masonry or concrete walls not less than 100 mm thick, with fire protection of–						
	Structural concrete cast in-situ around mesh or binding and designed to be load bearing and incorporating–						
	Category B or C aggregate	25	32	38	57	76	8, 11, 12, 13
	Category A aggregate	25	32	38	51	63	8, 11, 12, 13
	Gypsum cast in-situ	. .	. .	. .	. .	48	. .
	Gypsum-perlite or gypsum-vermiculite plaster–						
	Sprayed on metal lath	19	22	25	35	44	14, 15
	Sprayed to contour	22	25	35	48	57	. .
	Columns not incorporated in, or in direct contact with solid masonry or concrete walls not less than 100 mm thick, with fire protection of–						
	Solid clay bricks with–						
	Column spaces filled	50	50	50	63	75	11, 12
	Column spaces not filled	50	50	63	. .	. .	11
	Solid concrete blocks with–						
	Column spaces filled	50	50	51	75	100	11, 12
	Column spaces not filled	50	50	63	. .	. .	11

Table 20.10 – *continued.*

FIRE-RESISTANCE RATINGS DEEMED TO APPLY TO CERTAIN STRUCTURAL MEMBERS – *continued.*

Column 1	Column 2	Col. 3	Col. 4	Col. 5	Col 6	Col. 7	Column 8
Structural member	Construction of member	Thickness of principal material (millimetres)					Annexure reference–clause number
		1 hr	1½ hr	2 hr	3 hr	4 hr	
Steel columns and pipe columns–*continued*	Columns not incorporated in, or in direct contact with solid masonry or concrete walls not less than 100 mm thick, with fire protection of–						
	Gypsum blocks laid in gypsum-sand mortar with–						
	Column spaces filled	. .	. .	50	75	100	11, 12
	Column spaces not filled . .	. .	. .	50	. .	. .	11
	Hollow terra-cotta blocks plastered 13 mm thick with–						
	Column spaces filled . . .	. .	. .	50	75	100	9, 11, 12
	Column spaces not filled .	. .	. .	50	. .	. .	9, 11
	Structural concrete cast in-situ around mesh or binding and not subjected to any applied loading	25	32	38	51	63	11, 12, 13
	As above, plastered 13 mm thick	. .	25	32	38	51	6, 11, 12, 13
	Structural concrete cast in-situ around mesh or binding and designed to be load-bearing and incorporating–						
	Category B or C aggregate	25	38	44	63	89	8, 11, 12, 13
	Category A aggregate	25	32	38	51	70	8, 11, 12, 13
	Columns not incorporated in, or in direct contact with solid masonry or concrete walls not less than 100 mm thick, with fire protection of–						
	Gypsum cast in-situ	. .	. .	. .	. .	51	. .
	Gypsum-perlite or gypsum-vermiculite plaster–						
	Sprayed on metal lath	19	22	29	38	48	14, 15
	Sprayed to contour	25	32	41	54	63	. .
Concrete columns.	Columns of–						
	Reinforced concrete	Refer to sub-clause (1) of clause 20.10.					
	Prestressed concrete	Refer to sub-clause (2) of clause 20.10.					
Steel open-webbed joists, beams, girders and trusses.	Joints, beams, girders and trusses in direct contact with solid reinforced concrete slab or hollow-block floor or roof construction, with fire protection of–						
	Structural concrete encasement incorporating–						
	Category B or C aggregate .	25	32	38	51	63	8, 16
	Category A aggregate	25	25	32	44	57	8, 16
	Gypsum-perlite, or gypsum-vermiculite plaster–						
	Sprayed on metal lath . . .	19	22	25	35	44	15, 17
	Sprayed to contour	22	25	35	48	57	15, 17
	Joints, beams, girders and trusses not in direct contact with solid reinforced concrete slab or hollow-block floor or roof construction with fire protection of–						
	Structural concrete encasement incorporating–						
	Category B or C aggregate	25	38	44	63	89	8, 16
	Category A aggregate	25	32	38	51	70	8, 16
	Gypsum-perlite or gypsum-vermiculite plaster–						
	Sprayed on metal lath . . .	19	22	29	38	48	15, 17
	Sprayed to contour	25	32	41	54	63	15, 17
Floors, roofs, and ceilings.	Concrete–						
	Reinforced	Refer to sub-clause (1) of clause 20.10.					
	Prestressed	Refer to sub-clause (2) of clause 20.10.					

ANNEXURE TO TABLE 20.10

1. *Ashlar Stone Masonry.* The ashlar stone masonry used shall be in a portion of the building containing not more than two storeys, and shall not be of—

   (a) aplite, granite, grandodiorite, quartz dacite, quartz diorite, quartz porphyrite, or quartz porphyry; or

   (b) conglomerate, quartzite, or sandstone; or

   (c) chert or flint; or

   (d) limestone or marble.

2. * * * * * * *

3. *Cored or Lattice Bricks.* The cored or lattice bricks used shall have a net volume, exclusive of cored and similar holes, of not less than 75 per cent of their gross volume, measured on the overall rectangular shape of the bricks.

4. *Cavity Walls of Solid Clay Bricks.* Cavity walls of solid clay bricks in which one leaf is on flat and one leaf is on edge shall be subject to the following rules:

   (a) One leaf of brickwork shall have an actual thickness of not less than 110 mm and the other leaf shall have an actual thickness of not less than 75 mm.

   (b) The thickness of brickwork shall be subject to the tolerances permitted for bricks by Specification No. 4 "Burnt Clay and Shale Building Bricks".

   (c) The cavity shall be not more than 50 mm wide.

5. *Cavity Walls having one leaf of Solid Clay Bricks and one leaf of Concrete Blocks.* Cavity walls of solid clay bricks and concrete blocks shall be subject to the following rules:

   (a) The outer leaf of the wall shall consist of solid clay bricks not less than 110 mm thick.

   (b) The inner leaf of the wall shall consist of solid or hollow concrete blocks having—

      (i) an actual thickness of not less than 90 mm; and

      (ii) a net thickness in the case of hollow concrete blocks of not less than 68 mm, calculated in accordance with the rules applicable to concrete blocks of Category C aggregate according to clause 7.

   (c) The leaves shall be tied with 3.65 mm wire ties according to Australian Standard Interim 324, "Metal Wall Ties for Brickwork".

   (d) The cavity shall be not more than 50 mm wide.

6. *Certain Tabulated Thicknesses Exclude Plaster.* The thickness of plastering used shall be additional to the listed thickness of the principal material.

7. *Thickness of Hollow Concrete Blocks.*

(1) The thickness listed in Table 20.10 shall be calculated by taking the total actual volume of a concrete block, subtracting the volume of all core holes and dividing the resultant figure by the actual area of one vertical exposed face of the block.

(2) Where the blocks are plastered the thickness of the block according to subclause (1) may be increased by the amount shown in the following table:

INCREASE OF THE EQUIVALENT THICKNESS FOR WALLS OF CONCRETE BLOCKS BY APPLICATION OF PLASTER.

Type of aggregate used in manufacture of blocks (See clause 8)	Type of plaster and its location		
	Cement and sand, or cement, lime and sand on *one* face only	Cement and sand, or cement, lime and sand on *both* faces	Gypsum, or gypsum-perlite, or gypsum-vermiculite on *one* or *both* faces
Category A aggregate.	No concession shall be made.	Equivalent thickness of concrete block without plaster. *plus* 25 per cent of total thickness of plaster.	Equivalent thickness of concrete block without plaster. *plus* total thickness of plaster.
Category B aggregate.	No concession shall be made.	Equivalent thickness of concrete block without plaster. *plus* 35 per cent of total thickness of plaster.	Equivalent thickness of concrete block without plaster. *plus* 1.1 times the total thickness of plaster.
Category C aggregate.	No concession shall be made.	Equivalent thickness of concrete block without plaster. *plus* 50 per cent of total thickness of plaster.	Equivalent thickness of concrete block without plaster. *plus* 1.25 times the total thickness of plaster.

8. *Aggregates for Concrete and Concrete Blocks.*

(1) Category A aggregate shall comply with the following requirements:

(a) The aggregate shall consist of particles with a uniformly porous and cellular structure.

(b) The aggregate may be—

(i) material prepared by expanding, calcining or sintering such materials as clay, shale, slate, diatomaceous shale, perlite, vermiculite or obsidian;

(ii) expanded blast-furnace slag produced by treating molten blast-furnace slag with water; or

(iii) material from natural deposits of frothed types of lava such as certain pumices and certain scorias, being porous volcanic-glass formations, friable in character and predominantly light grey in colour for pumice and dark grey for scoria.

(c) Aggregate other than pumice or scoria shall not contain more than 65 per cent by weight of silica (SiO_2) when determined by chemical analysis.

(2) Category B aggregate shall be one of the following:

(a) Coal or coke cinders.

(b) Scorias other than those referred to in subclause (1).

(c) Unexpanded blast-furnace slag.

(3) Category C aggregate shall comply with the following:

(a) Aggregate shall comply with the Australian Standard A77, "Aggregates for Concrete".

(b) Aggregate shall be—

(i) calcareous material;

(ii) river gravel, granite, feldspar, dolerite, diorite, basalt; or

(iii) greywacke or sandstone.

(c) Aggregate shall contain not more than 65 per cent by weight of silica (siO_2), determined by chemical analysis.

(4) Fine aggregate shall comply with the following:

(a) Where Category A aggregates are used the fine aggregate shall be of the same material as is used for the coarse aggregate, or if silicious sand is used its total amount shall be not more than 20 per cent of the total weight of all fine and coarse aggregates.

(b) Lightweight fine aggregate shall have a density when dry and loose of not more than 1 120 kg/m^3.

9. *Hollow Terra-cotta Construction.*

(1) The volume of cored holes in a block shall not exceed—

(a) 35 per cent of the gross volume of the block in a block of 75 mm nominal thickness; or

(b) 40 per cent of the gross volume of the block in a block of 100 mm nominal thickness; or

(c) 50 per cent of the gross volume of the block in a block of 150 mm nominal thickness.

(2) The net thickness of a terra-cotta block shall be the nominal total thickness of that block.

10. *Gypsum-perlite or Gypsum-vermiculite Plaster in Walls.* The gypsum-perlite or gypsum-vermiculite plaster used shall be applied to each exposed side of steel expanded-metal lath, the lath being securely wired to 19 mm x 0.44 kg/m steel channels used as studs and spaced at not more than 380 mm centres.

11. *Protection of steel Columns and Pipe Columns.*

(1) Where the principal fire-protective construction of a steel column or pipe column is brickwork, blockwork, concrete, or similarly hard construction placed against the steel, the thickness listed for the material of that construction shall be construed to mean the thickness measured from the face of the steel or from the outer part of any rivet or bolt, whichever is the nearer to the outside of the fire-protective construction, subject to the provisions of subclause (2).

(2) The following rules shall apply to construction other than terra-cotta blockwork:

(a) Where the construction has an overall thickness of not less than 38 mm the measurement may be made disregarding rivet heads.

(b) Where the construction has an overall thickness of not less than 50 mm the measurement may be made disregarding any part of a bolt that is not a high-tensile bolt.

(c) Where the construction has an overall thickness of not less than 50 mm, any splice plate having no part located in that part of the column that begins 915 mm above the level of a floor, and terminates at the underside of the floor or roof next above, may encroach upon that thickness by not more than one-quarter thereof.

(d) Where the construction is in a column intended to have a 4-hour fire-resistance rating, the edge of any flange not more than 38 mm thick (measured inclusive of any splice plate) that projects more than 63 mm beyond a web may encroach by 12 mm upon the overall thickness.

(3) Bricks and concrete blocks shall have steel wire or mesh reinforcement laid in alternate courses, lapped at corners, and gypsum blocks and hollow terra-cotta blocks shall be similarly reinforced in every horizontal joint.

12. *Re-entrant and Like Parts of Certain Steel Columns.* Where steel columns are required to have a 3-hour or a 4-hour fire-resistance rating, re-entrant parts and parts, if any, between the required fire-protective material and the steel shall be filled with concrete or other hard fire-protective material.

13. *Reinforcement of Fire-protective Concrete.* A steel wire mesh or binding shall be placed approximately 20 mm from the outer surface of the fire-protective concrete used, and the mesh or binding shall include wires–

(a) having a diameter of not less than 3.25 mm; and

(b) spaced at not more than 100 mm centres vertically,

except that, where the concrete has an overall thickness of not less than 50 mm, wires having a diameter of not less than 4.87 mm and spaced at not more than 150 mm centres vertically may be used instead.

14. *Column Protection of Gypsum-perlite or Gypsum-vermiculite Plaster on Metal Lath.* In column protection of gypsum-perlite or gypsum-vermiculite plaster on metal lath are listed–

(a) the plaster shall be applied to the lath; and

(b) the lath shall be of–

(i) steel expanded metal, not less than 12 mm clear of the column where the plaster has a thickness of 35 mm or more, or not less than 6 mm clear of the column otherwise, and fixed at not more than 610 mm centres vertically to steel furring channels; or

(ii) self-furring steel expanded metal with furring dimples to hold it not less than 10 mm clear of the column.

15. *Material Sprayed on Metal Lath.* The lath shall be steel expanded metal lath and the thickness of the sprayed material shall be measured from the back of the lath.

16. *Protection of Steel Open-webbed Joists, Beams, Girders and Trusses.* Where the principal fire-protective material of a steel

open-webbed joist, beam, girder, or truss is structural concrete encasement-

(a) the thickness of such encasement listed shall be construed to mean the minimum thickness measured from the face of the steel or from the outer part of any rivet or bolt, whichever is the nearer to the outside of the encasement, except that–

(i) where the encasement has an overall thickness of not less than 38 mm the measurement may be made disregarding rivet heads; and

(ii) where the encasement has an overall thickness of not less than 50 mm the measurement may be made disregarding any part of a bolt that is not a high-tensile bolt;

(b) a steel wire mesh or binding shall be placed in the encasement approximately 20 mm from the outer surface thereof, and the mesh or binding shall include wires–

(i) having a diameter of not less than 3.25 mm; and

(ii) spaced at not more than 100 mm centres horizontally, except that, where the concrete has an overall thickness of not less than 50 mm, wires having a diameter of not less than 4.7 mm and spaced at not more than 150 mm centres horizontally may be used instead; and

(c) where the encasement, being on the soffit of a joist, beam, girder, or truss, has a thickness of less than 38 mm plus one-twelfth the width of that soffit, it shall be mechanically vibrated into position.

17. *Gypsum-perlite Plaster, or Gypsum-vermiculite Plaster as Protection for Joists, Beams and the like.* Where the protection is applied to a steel open-webbed joist, beam or truss, the lath shall be spaced not less than 20 mm clear from the steel, using steel furring channels at not more than 610 mm centres.

GROUP V – FIRE SAFETY AND FIRE RESISTANCE

Part 21 – Fire Doors, Smoke Doors, Fire Windows, and Fire Shutters – Construction Requirements.

21.1 *Fire doors: general requirements.*

Every required firedoor shall –

(a) Comprise a complete doorset as described in Australian Standard CA57 "SAA Fire Door Code";

(b) Comply with the relevant provisions of that Standard; and

(c) Subject to the variations permissible under that standard, be identical with a tested prototype which –

(i) has achieved the required fire-resistance rating;

(ii) during the first 30 minutes after the commencement of the fire test, did not have a rise in temperature on the side remote from the furnace of more than 121°C, except in any glazed portion thereof.

21.2 *Glazing in fire doors.*

Notwithstanding the provisions of Australian Standard CA 57 "SAA Fire Door Code", a required fire door –

(a) shall not incorporate glazing if it protects an opening in a fire wall; and

(b) shall not incorporate glazing in excess of 64.6 x 103 mm2 in any other case.

21.3 *Smoke doors*

Every required smoke door shall –

(a) comprise one door-leaf or two door leaves;

(b) be side-hung;

(c) inhibit the penetration of smoke, at every part, through the doorway to which it is fitted; and

(d) shall be automatically self-closing.

21.4 *Fire Window: Alternative construction*

Every required one-hour fire window shall be –

(a) a window that is –

(i) identical in construction with a prototype thereof that has been subjected to the Standard Fire Test and in that test has demonstrated its ability, for one hour, to prevent the spread of flames and hot gases through the window opening;

(ii) installed in the same manner as was the tested prototype referred to in sub-clause (i); and

(iii) not used in an opening that is greater in height or width than the opening in which the prototype was tested under the Standard Fire Test; or

(b) a window of wired glass in framing of galvanised steel, complying as to maximum dimensions, and installation with Specification No. 1 "Fire Windows"; or

21.4 *(Cont)*

(c) a glass-block window panel, complying as to maximum dimensions, construction, and installation with Specification No. 2 "Hollow Glass-block Window Panels".

21.5 Every required fire shutter shall be —

Fire Shutters: alternative construction.

(a) a shutter that is

(i) identical with a prototype thereof that has been subjected to the Standard Fire Test and in that test has demonstrated its ability, for the required period, to prevent the spread of fire through the opening concerned;

(ii) erected in the same manner as was the tested prototype referred to in sub-clause (i); and

(iii) not used in an opening that is greater in height or width than the opening in which the prototype was tested under the Standard Fire Test; or

(b) a shutter comprising a curtain of interlocking steel slats, mounted on a barrel and sliding in steel guides, and complying as to maximum dimensions, construction and installation with Specification No. 3 "Fire-resistant Roller Shutters".

SPECIFICATION NO. 1

(Clause 21.4)

FIRE WINDOWS

Scope

1. This specification relates to the construction and installation of windows of wired glass, in framing of galvanized steel, in window openings required by Part 22 to be protected by one-hour fire windows.

Dimensions

2. (1) An opening in which a fire window referred to in this specification is to be installed shall not exceed –

(a) $5.2m^2$ in area; and

(b) 2950 mm in height or width,

the measurements being taken between the jambs and between the sill and the lintel of the opening.

(2) The overall dimensions of a window, measured over the outer frame but not any part of an anchoring lug, shall be 12 mm less in both width and height than the intended inside dimensions of the opening in which it is to be installed.

Make-up of Windows

3. Each window shall comprise principally –

(a) an outer frame, and, in the case of a window having an openable sash;

(i) a moveable frame as part of that sash; and

(ii) a supplementary frame, housing the moveable frame and held to a fixed position within the window;

(b) glazing bars, if required under the limitations of this specification on sizes of panes of glass, or to support a supplementary frame;

(c) glazing beads; and

(d) a pane or panes of glass:

(i) cut to size and shape;

(ii) located within the frame or frames, or between the frame and any glazing bars;

(iii) held (by way of glazing compound) by the glazing beads; and

(iv) sealed at all edges by glazing compound

Openable sashes

4. An openable sash may be incorporated in a window if–

(a) the sash is the only one in the window;

(b) it is horizontally pivoted 76 mm above the level of its centre;

(c) it is constructed to close under its own weight, unassisted by any other agency; and

(d) the overall dimensions of the frame of the sash do not exceed;

(i) 1000 mm in width; and

(ii) 1305 mm in height.

Make-up of Openable Sashes

5. An openable sash shall comprise principally –

(a) the moveable frame together with its particular parts of the pivots;

(b) glazing bars, if required under the limitations of this specification on sizes of panes of glass;

(c) glazing beads;

(d) the particular parts of latching mechanism and a hold-open device, each in accordance with this specification, that are appropriate to the moveable frame; and

(e) a pane or panes of glass:

(i) cut to size and shape;

(ii) located within the frame, or between the frame and any glazing bars;

(iii) held (by way of glazing compound) by the glazing bead; and

(iv) sealed at all edges by glazing compound.

Make-up of Supplementary Frames

6. A supplementary frame shall comprise the frame together with its particular parts of the pivots and other mechanical devices.

Maximum Clear Spans of Panes

7. Neither the width nor the height of a pane shall exceed –

(a) 610 mm, if the pane is in an openable sash; or

(b) 762 mm, otherwise,

the measurements being between the nearer edges of the supporting steel members.

Glass

8. The glass in the panes shall –

(a) have a nominal thickness of 6.3 mm;

(b) have a mass per unit area of not less than 17 kg/m², and

(c) be reinforced, near the centre of its thickness, with steel wire not thinner than 0.45 mm and in one of the following forms:

(i) A square mesh, in which the wires are not more than 20 mm apart and are electrically welded at each intersection (the glass then being commonly known as "Georgian Wired").

(ii) A hexagon mesh, in which the average width of the hezagon is not more than 23 mm and the wires are intertwined in one direction at their intersections (the glass then being commonly known as "Hexagonal Wired").

(iii) A diamond mesh, in which the sides of the diamonds are not longer than 20 mm and the wires are electrically welded at each intersection (the glass then being commonly known as "Diamond Wired").

Steel

9. Frames, glazing bars, and glazing beads shall be of approximately uniform thickness and of solid rolled mild steel in conformity with the following–

(a) In outer frames, the steel shall be of modified T cross-section in which:

(i) the top of the T is off-centre by 4.7 mm;

(ii) the bottom of the T is extended to one side, to form a flange no less than 11 mm wide, parallel to the top of the T and off-centre in the same direction;

(iii) the T has a height of 34.9 mm;

(iv) the top of the T has a width of 33.3 mm;

(v) the area of the T is such that the steel section has a nominal mass per unit length of not less than 1.9 kg/m.

(b) In moveable frames and supplementary frames, above the pivot points in each case, the steel shall be of modified L cross-section in which:

(i) the top of the L is extended to each side, to form a flange 17.4 mm wide, parallel to the bottom of the L and widening the L by 9.5 mm;

(ii) the L has a height of 31.7 mm;

(iii) the bottom of the L has a width of 23.8 mm; and

(iv) the area of the L is such that the steel section has a nominal mass per unit length of not less than 2.3 kg/m.

(c) In moveable frames and supplementary frames, below points in each case, the steel shall be of modified unsymmetrical channel cross-section in which:

(i) the top flange of the channel is 23.8 mm wide, and the bottom flange not less than 7.9 mm wide;

(ii) a secondary top flange extends 9.5 mm backwards from the back of the channel, 4.7 mm below the main top flange;

(iii) the channel has a height of 31.7 mm; and

(iv) the area of the channel is such that the steel section has a nominal mass per unit length of not less than 2.3 kg/m.

(d) In glazing bars that are not in openable sashes, the steel shall be of T cross-section in which:

(i) the T has a height of 34.9 mm;

(ii) the top of the T has a width of 22 mm; and

(iii) the area of the T is such that the steel section has a nominal mass per unit length of not less than 1.6 kg/m.

(e) In glazing bars that are in openable sashes, the steel shall be of T cross-section in which:

(i) the T has a height of 26.9 mm;

(ii) the top of the T has a width of 22 mm; and

(iii) the area of the T is such that the steel section has a nominal mass per unit length of not less than 1.1 kg/m.

(f) In glazing beads, the steel shall be of 9.5 mm square cross-section.

Fabrication of Steel

10. The steel shall be fabricated as follows –

(a) In all frames:

(i) the steel members shall be mitred and flash-butt-welded at all corners;

(ii) glazing bars, if any, shall be tenoned into mortises in the frame the ends of the tenons being extended through the frame members and expanded and secured by pressure-weld riveting; and

(iii) all holes to be punched, drilled, or drilled and countersunk, but not to be tapped, shall be run through.

(b) In moveable frames and supplementary frames:

(i) the upper and the lower side members shall be flash-butt-welded at each pivot point, the meeting faces of the moveable and the supplementary frames being so aligned as to ensure their close fitting when in service; and

(ii) the frames shall be notched to receive the pivots.

(c) Where glazing bars intersect:

(i) one glazing bar shall be passed through a deformed mortise in the other; and

(ii) the two bars shall be pressed together to reform the mortise and form a joint that tightly locks.

(d) Glazing beads shall be drilled and countersunk for their fixing screws.

Galvanising of Steel

11. All steel shall be galvanised by hot-dipping after fabrication.

Pivots

12. Each pivot shall consist of two brass cups, nominally 3 mm thick, and one working inside the other –

(a) The outer cup having an inside diameter of not more than 44.5 mm and an inside depth of not less than 9.5 mm, and being riveted to the supplementary frame; and

(b) The inner cup having an inside depth of approximately 12.5 mm and being riveted to the moveable frame, the rivets being of cadmium-plated steel and not fewer than two of a cup.

Fixing of Supplementary Frames

13. Supplementary frames shall be fixed, within the window, to –

(a) a glazing bar; or

(b) a member of the outer frame,

by 6.3 mm galvanised or cadmium-plated screws along each edge, at points not more than 75 mm from a corner and elsewhere not more than 230 mm apart.

Fixing of Glazing Beads

14. Glazing beads shall be fixed to frames and glazing bars by countersunk 4.7 mm galvanised or cadmium-plated screws, at points not more than 100 mm from an end and elsewhere not more than 400 mm apart.

Glazing Compound

15. All glazing compound shall be a non-setting mastic that does not harden except at a surface exposed to the air.

Tolerances of Sizes of Panes

16. After selvage is removed, each pane shall fit the rebates of the supporting steel with a clearance –

(a) not more than 2.5 mm; and

(b) not less than 1.5 mm,

at every point on its perimeter.

Latching Mechanism

17. The latching mechanism shall –

(a) be located at the top of the openable sash concerned;

(b) incorporate latchbolts located not more than 150 mm from each side thereof;

(c) have keeps that will engage the latchbolts by not less than 9.5 mm;

(d) be self-latching in a manner that will ensure it will remain fully latched if there is any mechanical failure at any time; and

(e) be of stainless steel or nickel-silver.

Hold-open Device

18. The hold-open device –

(a) shall incorporate a thermal-release unit:

(i) actuated by fusing, shattering, or burning; and

(ii) capable of meeting the relevant requirements of Australian Standard CA57 "SAA Fire Door Code";

(b) shall on operation of that unit allow the openable sash to close itself;

(c) shall not provide for the openable sash to be held at less than 30 degrees off vertical;

(d) shall be located in a position, near the top of the sash; and

(e) shall not be accompanied by any other device that can be made to hold the sash open.

Anchoring of Outer Frame

19. The outer frame shall be anchored within its opening in the wall by either Method A or Method B that follows, the points of anchoring being –

(a) along each edge of the frame; and

(b) not more than 175 mm from a corner thereof and elsewhere not more than 610 mm apart, but not more than 100 mm on one or other side of a glazing bar that supports the supplementary frame around an openable sash:

Method A – The construction around the opening shall be:

(i) drilled; and

(ii) fitted with all-metal masonry anchors, but not any incorporating aluminium, lead, or tin,

and the frame shall be screwed towards the anchors, using 6.3

mm galvanised or cadmium-plated screws, until the anchors and frame are all firmly locked.

Method B – Lugs of:

(i) galvanised 25.4 mm x 6.3 mm steel flat, not less than 255 mm long and bent sideways by 20 mm at one end for screwing to the frame; or

(ii) galvanised deformed 16 mm reinforcing bar, not less than 230 mm long and drilled endwise at one end and tapped for screwing to the frame,

shall be screwed thereto, using 7.9 mm galvanised or cadmium-plated screws, and built into the construction around the opening.

Mortar Packing Around Outer Frame

20. The whole of the space between the outer frame and the construction around its perimeter shall be packed with cement or composition mortar.

SPECIFICATION NO. 2

(Regulation 21.4)

HOLLOW GLASS-BLOCK WINDOW PANELS

Scope

1. This specification relates to the construction and installation of window panels of hollow glass blocks in window openings required by Part 22 to be protected by one-hour fire windows.

Dimensions

2. An opening in which a glass-block window panel referred to in this specification is to be installed shall not exceed –
   (a) 5.2 m2 in area;
   (b) 2415 mm in height; and
   (c) 2375 mm in width.

Form of Window Panels

3. Each window panel shall –
   (a) be constructed of glass blocks, jointing mortar, and reinforcement; and
   (b) have an expansion joint, across its top and down its sides, in recesses in the wall at these positions.

Glass Blocks

4. The hollow glass-blocks shall –
   (a) not support any load additional to their own weight;
   (b) be not more than 197 mm wide and 197 mm high;
   (c) be not less than 98 mm thick;
   (d) have face shells not less than 4.5 mm thick at any part, with an average thickness of not less than 6.3 mm;
   (e) have a sanded finish, to provide a key for mortar, on each of the side and top and bottom faces; and
   (f) be manufactured by casting tow half-blocks and fusing them together to form a unit;
      (i) seamless at the back and front; and
      (ii) partially evacuated of air.

Jointing Mortar

5. The jointing mortar shall be a mortar obtained by mixing portland cement, hydrated lime, and well graded clean sand in the proportions of –

(a) 1 m^3 of cement of mass not less than 1505 kg;

(b) 1 m^3 of hydrated lime of mass not less than 560 kg; and

(c) 4 m^3 of sand,

no portion of the mixture containing any ingredient detrimental to the strength or setting of the whole.

Jointing Reinforcement

6. The joint reinforcement shall be strips of galvanised steel-wire mesh –

(a) 63 mm wide; and

(b) of wires not thinner than 1.80 mm and not more than 12.7 mm apart, both parallel and perpendicular to the length of the strip.

Expansion-joint Infilling

7. All expansion-joint infilling shall be –

(a) a non-hardening material incapable of resisting sustained loading; and

(b) 25 mm thick when ready to be placed in position.

Glazing Compound for Expansion Joints

8. All glazing compound for expansion joints shall be a non-setting mastic that does not harden except at a surface exposed to the air.

Recesses in Wall

9. The jambs and the lintel of the opening for the window panel shall be recessed –

(a) 57 mm deep; and

(b) to a width of 22 mm more than the thickness of the glass bricks,

to accept the sides and top of the panel, the expansion-joint filling, and the asbestos-rope edge-sealing concerned.

Coating of Sill

10. The construction of the window panel shall be in conformity with the following –

(a) Bedding joints, including that of the first course, shall be of jointing mortar 6 mm thick.

(b) Perpends shall be 6 mm wide and filled with jointing mortar.

(c) Every third bedding joint shall incorporate a strip of joint reinforcement;

(i) extending the whole length of the joint; and

(ii) secured lengthwise at each end to the adjacent part of the wall, by either:–

(a) being carried not less than 230 mm into that part, at the same or a slightly higher level; or

(b) being spliced by an overlap of 230 mm, in the window panel, to a strip of joint reinforcement so carried into that part.

(d) The top and the two edges of the panel shall be finished short of the surrounding construction by 25 mm, except for the joint reinforcement.

(e) The gaps so left between the panel and the parts of the wall in which it stands shall be:

(i) filled with expansion-joint infilling;

(ii) caulked at each edge with 12 mm asbestos rope; and

(iii) sealed outside the rope with glazing compound.

SPECIFICATION NO. 3

(Regulation 21.5 of the Building Regulations 1973)

FIRE-RESISTANT ROLLER SHUTTERS

Scope

1. This specification relates to the construction and installation of metal roller shutters installed in openings in concrete or masonry walls where 2-hour fire shutters are permitted by Part 22 of these regulations, to be installed in place of required fire doors.

Dimensions

2. An opening in which a fire shutter referred to in this specification is to be installed shall not exceed 3600 mm in width or 13.9 m^2 in area.

Components

3. Each shutter shall comprise principally –
   (a) a curtain of horizontal interlocking metal slats;
   (b) two vertical guides, one at each side of the opening, between which the curtain can be raised and lowered; and
   (c) a horizontal barrel, above the opening, on which the curtain will be rolled while being raised to clear the opening.

Slats

4. The slats shall be in conformity with the following –
   (a) they shall be of steel strip not less than 0.88 mm in thickness;
   (b) each shall be rolled to form a curl of not less than 300° at each edge, so that the curls of successive slats will interlock to form hinges that extend the full width of the curtain;
   (c) they shall be so formed that the curtain in the closed position will be capable of withstanding a pressure at right angles to itself of not less than:
      (i) 575 Pa if the curtain is to be used on an external wall; or
      (ii) 383 Pa if it is to be used on an internal wall.

Ends of Slats

5. End pieces of steel or malleable iron shall be constructed and fitted to the slats in conformity with the following –
   (a) They shall be at no part less than 3 mm thick, and shall be suitably formed to fit the contours of the slats and fill the vertical guides and completely as is consistent with move-

ment of the curtain within the guides.

(b) One shall be fitted at each end of each slat, or at each end of each alternate slat, being riveted or welded to position.

(c) Where rivets are used, they shall be iron or steel not less than 3 mm diameter, and not fewer than two shall be used to fix each end piece.

Bottom of Curtain

6. A bottom rail shall be constructed and fitted to the curtain in conformity with the following –

(a) the rail shall comprise:

(i) two mild steel angles, each not less than 38 mm x 38 mm x 3 mm in cross-section; or

(ii) a mild steel T not less than 76 mm x 76 mm x 3 mm in cross-section and a mild steel backing strip not less than 63.5 mm x 3 mm in cross-section; or

(iii) other like construction in mild steel than is at least as strong.

(b) The two parts of the rail shall be fixed to opposite sides of the bottom slat, being bolted, riveted, or spot welded to position by bolts, rivets or spot welds at not more than 300 mm pitch.

(c) Where bolts or rivets are used they shall be of mild steel not less than 7.9 mm in diameter.

(d) The rail shall extend between the guides, and be formed to make close contact, over its whole length, with the threshold of the opening.

Lifting Handles

7. Four rigid lifting handles shall be fitted to the bottom rail, two on each side and centred not more than 760 mm apart.

Vertical Guides

8. Each vertical guide shall be in conformity with the following –

(a) It shall be of U cross-section, not less than 57 mm x 25 mm in overall size, in mild steel not less than 3 mm thick, one side of the U being held against the wall and the other to face away from the wall.

(b) It shall extend continuously from a level not less than 76 mm above the top of the opening to a level between 20 mm and 30 mm above the threshold of the opening, and shall have a flared lead-in at the top.

(c) It shall have fixing lugs welded to it at not more than 685 mm pitch, the top lug being centred not more than 152 mm from the top of the guide.

(d) The fixing lugs shall be of mild steel not less than 38 mm wide x 6.3 mm thick, and they shall be L-shaped so that:

(i) in holding the guide to position on the wall, one leg will bear against the wall at positions not less than 38 mm clear of the base of the U; and

(ii) the other leg will extend across not less than three-quarters of that side of the guide that faces away from the wall.

(e) Each fixing lug shall be drilled to take a fixing bolt not less than 9.5 mm in diameter, not more than 3 mm clear of the base of the U, and centred on the centre-liner of the lug.

Barrel

9. The barrel shall comprise a mild steel tube in which are mounted two mild steel axles, one at each end of the tube, the sizes of tube and axles being not less than shown in Table 9 for the particular width of opening to be protected by the shutter, except that tubes of larger diameter that are thinner but at least as strong in longitudinal bending may be used.

Table 9

MINIMUM SIZES OF BARREL TUBES AND AXLES

Width of Wall Opening, Measured Between Jambs.	Minimum Sizes of Tube		Minimum Diameter of Axle
	Outside Diameter	Thickness	
(mm)	(mm)	(mm)	(mm)
Not exceeding 2590	101.6	4.7	28.5
Exceeding 2590 but not 2745	101.6	5.8	31.7
	114.3	3.6	
Exceeding 2745 but not 2895	114.3	4.4	31.7
Exceeding 2895 but not 3050	114.3	7.9	34.9
	127.0	4.0	
Exceeding 3050 but not 3200	127.0	6.3	34.9
	139.7	4.4	
Exceeding 3200 but not 3350	139.7	4.8	38.1
Exceeding 3350 but not 3505	139.7	7.9	38.1
	152.4	4.7	
Exceeding 3505 but not 3660	152.4	6.3	38.1
	165.1	4.4	

Mounting of Barrel

10. Each axle shall be set in two iron or steel bearings, one at the end of the barrel tube and the other not less than 610 mm from that end, and be concentric with the tube.

Brackets for the Barrel

11. The barrell shall be supported on brackets that are in conformity with the following –

    (a) The brackets shall be of steel or cast or malleable iron, forming bearings of an enclosed type for the axles.

    (b) They shall project beyond the curtain when this is fully rolled onto the barrel, so as to protect the edges of the curtain and the operating mechanism from possible damage by impact of like cause.

Connexion of Curtain to Barrel

12. The curtain shall be connected to the barrel by either Method A or Method B that follows –

    Method A

    (i) A series of rings or collars of ferrous metal, gun metal, or phosphor bronze shall be screwed or bolted to the barrel at positions not more than 1065 mm apart, centre-to-centre and, as relevant, not more than 405 mm from the edges of the curtain.

    (ii) A mild steel bar not less than 25.4 mm x 6.3 mm in cross-section shall be attached to each of the rings or collars by screws or bolts not less than 7.9 mm in diameter.

    (iii) The top slat of the curtain shall be attached to the bar by screws or bolts not less than 7.9 mm in diameter and at not more than 300 mm pitch.

    Method B

    (i) A series of steel-strip chains shall be screwed to the barrel at positions not more than 300 mm apart, centre-to-centre, and, as relevant, not more than 100 mm from the edge of the curtain, using screws not less than 7.9 mm in diameter.

    (ii) The chains shall be made of links of material having a minimum cross-sectional area at any part of 64.5 mm^2 and have steel connecting pins not less than 4.7 mm in diameter between their links.

    (iii) They shall each be attached to the top slat of the curtain by not fewer than two black-iron or tinned rivets not less than 4.7 mm in diameter.

Operating Mechanism

13. The barrel shall be fitted with an operating mechanism to raise and lower the curtain as required in normal service.

Automatic Operation of Operating Mechanism

14. The operating mechanism shall incorporate a heat-actuated device that –

    (a) will operate automatically at a temperature of not more than 88°C when the door is in any position; and

    (b) in so operating will cause the curtain to descend to the threshold of the opening.

Height of Barrel

15. The height of the centre of the barrel above the head of the opening shall be not less than 254 mm.

Length of Curtain

16. The length of the curtain shall be such that, when the shutter has descended to the threshold, the curtain is in contact with the barrel not less than half-way and not more than three-quarters way round the barrel, measured to the centre of the end slat.

Width of Curtain

17. The curtain shall overlap the jamb at each side of the opening by not less than 63 mm.

Threshold

18. The threshold shall be of concrete or other non-combustible material for a distance of not less than 15.5 mm on each side of the line between the centres of the bottoms of the vertical guides.

Mounting of Barrel Brackets

19. The brackets to support the barrel shall each be fixed to the wall by not fewer than two mild steel bolts, not less than 12.7 mm in diameter, that –

    (a) pass through the wall and each have a mild steel washer, not smaller than 63 mm square x 4.7 mm thick, providing bearing beneath its head; or

    (b) are embedded not less than 155 mm into the wall:

        (i) by being cast therein; or

        (ii) by being set in parallel-sided holes neatly cut therein and rammed hard with staff 2:1 portland-cement mortar.

Mounting of Vertical Guides

20. The vertical guides shall be mounted on the wall in confirmity with the following –

(a) They shall be so located that the curtain and its end pieces enter the guides, at every part of the height of the guides, to within not more than 6 mm from the bottom of the grooves measured simultaneously at both guides.

(b) The fixing lugs of the guides shall each be fixed to the wall by a mild steel bolt:

(i) not less than 9.5 mm in diameter; and

(ii) embedded not less than 63 mm into the wall, being set in a parallel-sided hole neatly cut therein and rammed hard with staff 2:1 portland cement mortar.

Part 22 – Location and Protection of Openings

22.1 *Application*

This part shall apply to every building except a Class I or Class X building.

22.2 *Opening defined*

For the purposes of this Part, an "opening" in an external wall includes –

(a) a doorway;

(b) a window or other glazed area, whether fixed or openable; and

(c) any section of the wall, such as a panel-filled section, that does not have the relevant fire-resistance rating specified by Part 16 for the structural sections of the wall.

22.3 *Vertical separation of openings in external walls*

(1) This clause shall apply to buildings of Type 1 and Type 2 construction, but shall not extend to –

(a) a building or portion of a building designed, constructed, or adapted as an open-deck parking station; or

Application of Clause

(b) openings above one another in a stairway.

Alternative methods of separation

(2) Where any part of an opening in an external wall is situated vertically above another opening in the storey next below, there shall be provided between those openings –

(a) a spandrel or other vertical construction complying with sub-clause (3); or

(b) a slab or other horizontal construction complying with sub-clause (4) or the variations from sub-clause (4) that are permissible under sub-clause (5).

Conventional spandrel-type separation

(3) If a spandrel or other vertical construction is provided between the openings the following rules shall apply:

(a) the construction shall comprise non-combustible material having the relevant fire-resistance ratings listed in Table 16.7 (in the case of Type 1 construction) or Table 16.8 (in the case of Type 2 construction).

(b) the construction shall be not less than 900 mm in height.

(c) there shall be no voids between the edge of the floor and the inside face of the construction.

Horizontal slab-type separation

(4) If a slab or other horizontal construction is provided between the openings, the following rules shall apply:

(a) the construction shall comprise non-combustible material having a fire-resistance rating of not less than one hour.

(b) the construction shall project outwards from the plane of the opening in the higher storey for a distance of not less than 1100 mm.

22.3 (4) *(Cont)*

(c) the construction shall extend along the wall at each side of the two openings concerned for a distance of not less than 450 mm beyond the lateral limits of those openings.

Combined vertical-horizontal separation

(5) The following variations from the rules set out in sub-clause (4) shall be permissible:

(a) It shall not be necessary for the slab or other horizontal construction to comply with paragraph (b) of sub-clause (4) if a combination of the following dimensions produces an overall dimension of not less than 2200 mm:

(i) The horizontal dimension from the plane of the opening in the lower storey to the outside edge of the slab or other horizontal construction. (If the plane of the opening in the lower storey is behind the plane of the opening above, the measurement shall be taken as though the lower opening were in the same plane as that of the opening above.)

(ii) The vertical dimension, measured from the level of the top of the opening in the lower storey (or from any part of the slab or other horizontal construction which extends below that level) to the bottom level of the opening in the upper storey (or to any part of the slab or other horizontal construction which extends above that level). If such vertical dimension is less than 300 mm, it shall not be counted in the calculations.

(iii) The horizontal dimension from the outside edge of the slab or other horizontal construction to the plane of the opening in the upper storey.

(b) It shall not be necessary for the construction at any side of the two openings to comply with paragraph (c) of sub-clause (4) if –

(i) The construction is provided with a vertical upstand at or beyond the lateral limits of the two openings;

(ii) The height of the vertical upstand is not less than 300 mm; and

(iii) The combination of the height of the vertical upstand plus twice the distance, if any, by which the construction extends beyond the lateral limits of the two openings produces an overall dimension of not less than 900 mm.

Approval of other construction.

(6) Notwithstanding anything to the contrary in this clause an external wall of a form of construction which is in lieu of the foregoing compliance may be approved by the Commission where it –

(a) comprises non-combustible material having a fire-resistance rating of not less than one hour; and

22.3 (6) *(Cont)*

(b) is capable, of inhibiting the spread of fire from storey to storey via openings in the wall either better or as effectually as construction complying with clause (3), (4) or (5).

22.4 *Protection of openings in external walls.*

(1) The following openings in an external wall shall be protected in accordance with sub-clause (2):

Where protection required.

(a) an opening that faces and is less than 6 m from the farther boundary of a road adjoining the site, other than one located in a storey at or near ground level;

(b) an opening that faces and is less than 3 m from the boundary of an adjoining allotment of land.

Protection required.

(2) The protection referred to in sub-clause (1) shall be as follows:

(a) Doorways – one-hour fire doors (self-closing or automatically);

(b) Windows and other glazed areas – one-hour fire windows (automatic or permanently fixed in closed position); or one-hour automatic fire shutters;

(c) Other openings – construction having a fire-resistance rating of not less than one hour.

22.5 *Limitations of openings in external walls.*

Openings between successive floors in an external wall referred to in clause 22.4 shall not occupy more than one-third of the area of the wall between those floors, except where the openings face a public road and are located in a storey at ground level.

22.6 *Openings in fire walls.*

(1) No opening shall be permitted in a fire wall except –

Permissible openings.

(a) doorways protected in accordance with this clause; or

(b) openings for services installed or protected in accordance with clause 22.13.

Protection of doorways.

(2) A doorway in a fire wall shall be protected by one of the following alternative methods;

(a) two fire doors or fire shutters, one on each side of the doorway, each of which shall –

(i) have a fire-resistance rating of not less than half that required by Part 16 for the fire wall; and

(ii) be self-closing, or automatic if the automatic closing device is so designed as to operate in the event of fire in a section on either side of the fire wall; or

(b) a fire door on one side and a fire shutter on the other side of the doorway, each of which shall comply with sub-paragraphs (i) and (ii) of paragraph (a); or

(c) a single fire door or fire shutter which –

(i) has a fire-resistance rating of not less than that required by Part 16 for the fire wall; and

22.6 (2) (c) *(Cont)*

(ii) is self-closing, or automatic if the automatic closing device is so designed as to operate in the event of fire in a section on either side of the fire wall.

(3) The aggregate width of openings for doorways in a fire wall shall not exceed one-half of the length of the fire wall concerned. *Limitation on doorway openings.*

22.7 Every doorway that opens to a fire-isolated stairway, fire-isolated passageway, or fire-isolated ramp (not being a doorway opening to a road or open space) shall be protected by a self-closing one-hour fire door. *Doorways in fire-isolated stairways, passageways, and ramps.*

22.8 (1) Where, pursuant to Part 23, a lift shaft is required to be fire-isolated, the entrance doorways to that shaft shall be protected by one-hour fire doors that –

(a) comply with the provisions of Australian Standard CA.3 "SAA Lift Code" relating to fire-rated lift landing doors; and *Doorways.*

(b) are set to remain in the closed position at all times except where they are required to be open for the reception or discharge of passengers, goods or vehicles.

(2) Lift call panels, indicator panels and other panels in the walls of a fire-isolated lift shaft shall, if they exceed 32.5 x 10^3 mm^2 in area, be backed by construction having a fire-resistance rating of not less than one hour. *Lift indicator panels, etc.*

22.9 (1) In a Class II or Class III building, every doorway providing access from a sole-occupancy unit or a room not within a sole-occupancy unit to – *Doorways in buildings of Class II and III.*

(a) a public corridor, public hallway, or the like; or *Doorways to public corridors, etc.*

(b) the landing of an internal non-fire-isolated stairway serving as a required exit,

shall be protected in accordance with sub-clause (3).

(2) A doorway providing access from a sole-occupancy unit to another sole-occupancy unit or to a room not within a sole-occupancy unit shall be protected in accordance with sub-clause (3). *Doorways between sole-occupancy units, etc.*

(3) The protection required by sub-clauses (1) and (2) shall be as follows: *Protection required.*

(a) in a building of Type 1 or Type 2 construction – a self-closing one-hour fire door.

(b) in a building of Type 3, 4 or 5 construction – a self-closing, tight-fitting, solid core door, not less than 35 mm thick.

22.10 *Entrance doorways of Class IV buildings.* The doorway of a Class IV portion of a building providing access to any internal part of the building not within the Class IV portion shall be protected as follows:

(a) In a building of Type 1 or Type 2 construction – a self-closing one-hour fire door.

(b) In a building of Type 3, 4 or 5 construction – a self-closing, tight-fitting, solid core door, not less than 35 mm thick.

22.11 *Openings in floors for certain services.* In a building of Type 1 or Type 2 construction, services associated with the functioning of a building and passing through a floor shall either be in individual metal pipes, metal conduits, metal ducts or the like, or be installed in shafts complying with Part 16.

22.12 *Openings to shafts, etc.*

Protection in Type 1 and 2 construction.

(1) In a building of Type 1 or Type 2 construction, an opening in a wall providing access to a ventilating, pipe, garbage, or other service shaft shall, except as conceded in sub-clause (2) be protected by –

(a) a self-closing one-hour fire door; or

(b) an access panel having a fire-resistance rating of not less than one hour; or

(c) one of the devices referred to in paragraphs (a) and (b) or by a door or hopper of non-combustible construction if the shaft is a garbage shaft.

In sanitary compartments.

(2) An opening referred to in sub-clause (1) shall not be subject to that sub-clause if it is –

(a) located within a sanitary compartment; and

(b) provided with a door or panel which, together with its frame, is non-combustible or has a fire-resistance rating of not less than one-half hour.

22.13 *Openings for service installations.*

Application of clause.

(1) This clause shall apply to openings in a wall, floor, or ceiling that is required to have a fire-resistance rating or a resistance to the incipient spread of fire.

Pipes and conduits.

(2) Individual openings for metal pipes, metal conduits, or the like, conveying –

(a) wires or cables for electrical or telephone services; or

(b) gas, including liquefied petroleum gas; or

(c) other services associated with the functioning of the building,

shall be no longer than is necessary to permit of their installation and all gaps around them shall be packed or otherwise treated to the full thickness of the wall, floor, or ceiling, as the case requires, so that fire-resisting performances will not be impaired.

22.13 (Cont)

(3) Wires or cables for electrical, telephone, or other services that – *Wiring not in pipes, etc.*

(a) are not enclosed in metal pipes, metal conduits, or other non-combustible material; and

(b) are installed within or pass through a wall, floor, or ceiling,

shall be installed according to Part 55, including any relevant provisions of that Part for the protection of openings made for those services.

(4) Openings for ventilating or air-conditioning ducts or other equipment shall be protected as required by Specification No. 7 "Air Handling Systems" and clause 55.7 of this Manual. *Ventilating and air-conditioning ducts.*

(5) Openings for other services not mentioned in sub-clauses (2), (3) and (4) shall be protected in an approved manner. *Other services.*

(6) Openings in floors and roofs, not provided for elsewhere in this Manual, shall be protected in an approved manner to resist effectively the spread of fire and the products of combustion, and shall be of such approved dimensions and construction as not to endanger persons using the building, as considered satisfactory by the Commission. *Other openings.*

GROUP V – FIRE SAFETY AND FIRE RESISTANCE

Part 23 – Separation of Sections of a Building by Fire-resisting Construction.

23.1 (1) A section of the building that is fire-separated from the remainder of the building by a fire wall in accordance with this clause shall be subject to the provisions of this Manual as though it were a separate building.

Separation of sections by fire walls.

Where section regarded as a separate building.

(2) A fire wall shall extend through storeys and spaces in the nature of storeys that are common to the section concerned, and the adjoining section of the building, and shall be carried through to the underside of a roof covering.

Fire wall to extend through all storeys.

(3) If the roof of one of the adjoining sections is lower than the roof of the other section, the fire wall –

Where sections have roofs at different levels.

(a) shall be carried through to the underside of the covering of the lower roof; and

(b) shall have a wall constructed on top of it which –

(i) extends to –

(A) the underside of the covering of the higher roof; or

(B) a level 6 m above the lower roof, whichever is the less; and

(c) have a fire-resistance rating equal to that required for the fire wall it surmounts; and

(d) every opening in that wall within the height shall be protected in accordance with the provisions of clause 22.4.

(4) Timber purlins or other combustible material shall not pass through or cross the fire wall.

Combustible materials not to cross fire wall.

(5) The fire wall shall have the relevant fire-resistance rating prescribed by Part 16, according to the type of fire-resisting construction required for each of the adjoining sections and where these are different the greater rating shall apply.

Fire-resistance rating of fire wall.

(6) Openings in the fire wall shall comply with the relevant provisions of Part 22.

Openings.

23.2 (1) Where, in terms of Part 6, a building has portions of different classes of use, those portions shall be separated from one another by fire-resisting or fire-protective construction in accordance with this clause, except as conceded in clauses 23.3 and 23.4.

Separation between different classes of use when required.

(2) If the portions of different classifications are alongside one another in the same storey, they shall be separated in that storey

Within the same storey.

23.2 (2) *(Cont)* by a fire wall, the fire-resistance rating of which shall be determined according to paragraph (a) of sub-clause (1) of clause 16.15.

Within different storeys.

(3) If the portions of different classifications are situated one above the other in adjoining storeys they shall be separated as follows according to the required type of construction of the buildings:

(a) Type 1 and Type 2 construction – the floor between the adjoining classifications shall have a fire-resistance rating not less than that listed for a floor under Table 16.7 (if Type 1 construction is required) or Table 16.8 (if Type 2 construction is required) for the classification in the lower of the two adjoining storeys concerned.

(b) Type 3, 4 and 5 construction, (applicable only if one of the adjoining classes of use is either Class II or Class III) – the underside of the floor (including the sides and undersides of its floor beams, if any) shall be protected by –

(i) 12.7 mm plasterboard; or

(ii) 12.7 mm asbestos-silica board; or

(iii) 12.7 mm mesh-reinforced fibrous plaster in which the mesh is one of the 12.7 mm x 12.7 mm x 0.71 mm welded wire located not more than 6 mm from the exposed face; or

(iv) any other material not less fire-protective than 12.7 mm plasterboard;

the material in each case being of fire-protective grade and fixed in accordance with the normal trade practice applicable to the fixing of the material as a fire-protective covering.

23.3 *Class IV sections of buildings: exemption.* The walls or floors separating a Class IV section from the remainder of the building of which it is a part (including the case of a combined shop and dwelling) shall not be subject to clause 23.2.

23.4 *Exemption from separation within some storey.* It shall not be necessary to provide a fire wall between different classifications that are alongside one another in the same storey if each of the structural members throughout the storey has a fire-resistance rating as follows:

(a) where Part 16 specified the same rating for that member for each of the classifications concerned – the rating so specified.

(b) where Part 16 specifies different ratings for that member for any of the classifications concerned – the highest of the ratings so specified.

23.5 *Separation of lifts from remainder of building.* (1) In a building required to be of Type 1, 2 or 3 construction, lifts connecting more than two storeys shall be separated from the remainder of the building by way of enclosure in a fire-resisting shaft in which –

23.5 (1) (Cont)

(a) the walls have the relevant fire-resistance ratings prescribed by Part 16; and — *When required.*

(b) openings for lift landing doors and services are protected in accordance with Part 22.

(2) A stairway and lift shall not be incorporated in the one shall if either the stairway of the lift is required to be in a fire-resisting shaft. — *Stairways and lifts in the one shaft.*

23.6 Stairways, passageways and ramps shall be separated from the remainder of a building as provided in Part 24.

GROUP V – FIRE SAFETY AND FIRE RESISTANCE

Part 24 – Means of Egress

Division 1 – Introductory

24.1 This Part comprises the following Divisions: — *Divisions of Part 24.*

Division 1. – Introductory.
Division 2. – General Provisions.
Division 2A – Class I Buildings.
Division 3. – Class II and III Buildings.
Division 4. – Class V, VI, VII and VIII Buildings.
Division 5. – Class IX Buildings.

24.2 Reserved.

24.2a Only Division 2a shall apply to a Class I building. — *Application of Part.*

24.3 The exits and paths of travel to exits in a building shall comply with the provisions of this Part. — *Exits and paths to travel to comply.*

24.4 Exits shall comprise – — *Types of exits.*

(a) internal or external stairways;

(b) ramps;

(c) fire-isolated passageways;

(d) doorways opening to a road or open space.

Division 2 – General Provisions

24.5 This Division shall apply to every building except a Class I and X building. — *Application of Division.*

24.6 *Alterations to existing buildings.* Where alterations, extensions, or additions are proposed in respect of a building, and where such alterations, extensions, or additions would adversely effect the exits or paths of travel to the exits, the building shall comply with this Part or such of the provisions of this Part as necessary.

24.7 *Protection of openings in exits and paths of travel.* Doorways serving as required, exits to a road or open space, and doorways and other openings in the enclosing walls, floors and ceilings of required exits or public corridors, hallways, or the like, shall be protected in accordance with Part 22.

24.8 *Direct access to rooms from certain exits.* Doorways from rooms, other than –

(a) sole-occupancy units occupying the whole of a storey; and

(b) sanitary compartments,

shall not open directly to a stairway, passageway, or ramp that is required to be fire-isolated.

24.9 *Fire-isolated passageways: construction.* A fire-isolated passageway shall be enclosed by walls, floors, and ceilings of non-combustible construction having a fire-resistance rating of not less than one hour.

24.10 *Fire-isolated ramps: construction.* A fire-isolated ramp may be substituted for a fire-isolated stairway if the construction enclosing the ramp complies with Part 16 for the shaft of a fire-isolated stairway.

24.11 *External stairways in lieu of stairways.*

(1) External stairways may serve as required exits in lieu of fire-isolated stairways, subject to this clause.

Where permissible.

(2) The stairway (including connecting bridges, if any) shall be of non-combustible construction throughout.

Construction.

Enclosure under certain conditions.

(3) If any part of the stairway is less than 6 m from a window or doorway in an external wall of the building from which the stairway serves as a required exit –

(a) the stairway shall be enclosed for its full height above the lowest level of the window or doorway by non-combustible construction having a fire-resistance rating of not less than one hour; and

(b) no window or other glazed section in the enclosing walls of the stairway shall be within 3 m of any window or doorway in the external walls of the building.

Exemption from enclosure.

(4) Sub-clause (3) shall not apply if –

(a) every window is more than 3 m from any part of the stairway; and

(b) the following windows and doorways are protected as follows:

24.11 (4) (b) *(Cont)*

(i) windows 3 m to 6 m from stairway – one-hour automatic fire shutters, or one-hour fire-windows (automatic or permanently fixed in closed position);

(ii) doorways less than 3 m from stairway – one-hour self-closing fire doors.

(iii) doorways 3 m to 6 m from stairway – one-hour self-closing fire doors, or one-hour automatic fire shutters.

Escalators and non-required stairways.

Number of storeys served.

24.12 (1) Escalators and non-required non-fire-isolated stairways shall not connect more than –

(a) three storeys where each of those storeys is provided with an approved sprinkler system throughout; or

(b) two storeys otherwise,

and one of those storeys shall be situated at a level at which egress to a road or open space is provided.

Exemptions.

(2) Sub-clause (1) shall not apply to an escalator or stairway that is –

(a) within a sole-occupancy unit in a Class II building; or

(b) an external escalator or stairway, irrespective of the classification of the building.

Travel via non-fire-isolated stairways.

24.13 A non-fire-isolated stairway serving as a required exit shall provide a continuous means of travel via its own flights of stairs and landings from every storey served to the level at which egress to a road or open space is provided.

Fire-isolated stairways and ramps.

Discharge to road or open space.

Discharging to space in building that is not fully enclosed.

24.14 (1) Every fire-isolated stairway and fire-isolated ramp shall lead directly or by way of a fire-isolated passageway to a road or open space, except as conceded in sub-clause (2).

(2) In a Class V, VI, VII, VIII or IX building, a fire-isolated stairway or fire-isolated ramp discharging into a storey or similar space within the confines of the building shall not be subject to sub-clause (1) if –

(a) that storey or space is at a level at which egress to a road or open space is provided;

(b) that storey or space is unenclosed or only partly enclosed; and

(c) any walls, columns, piers, glazing or other construction at the periphery of that storey or similar space do not occupy, in total more than one-third of its perimeter.

Separation of rising and descending stair flights.

24.15 (1) Where a stairway serving as an exit is required to be fire-isolated, there shall be no direct connexion between –

24.15 (1) *(Cont)*

(a) a flight of stairs rising from a storey below the lowest level of access to a road or open space; and

(b) a flight of stairs descending from a storey above that level.

No direct connexion.

Construction separating flights.

(2) Any construction that is common to or separates rising and descending flights of stairs, as referred to in sub-clause (1), shall be non-combustible and have a fire-resistance rating of not less than one hour.

24.16 *Discharge of non-fire-isolated stairways and ramps in Class VI buildings.*

In a Class VI building, a non-fire-isolated required stairway or ramp shall discharge at a point not more than –

(a) 18 m from a doorway providing egress to a road or open space or from a fire-isolated passageway leading to a road or open space; or

(b) 30 m from one of two such doorways or passageways where travel to each of them from the stairway or ramp is in opposite or approximately opposite directions.

24.17 *Installations in exits and paths of travel.*

(1) Gas meters shall not be installed in a required exit or in any corridor, hallway, lobby or the like leading to a required exit.

Gas meters.

Gas pipes.

(2) Gas pipes and other fuel pipes shall not be installed in a required exit.

Other services.

(3) The following services and equipment shall not be installed in a required exit or in any corridor, hallway, lobby, or the like leading to a required exit unless enclosed by non-combustible construction or a material listed in clause 16.12:

(a) Electricity meters or ducts.

(b) Telephone switchboards.

(c) Electrical motors or other motors serving equipment in the building.

24.18 *Openings to chutes for hot products of combustion.*

An opening to any chute or duct intended for conveying the hot products of combustion shall not be located in any part of a required exit or any corridor, hallway, lobby, or the like leading to a required exit.

24.19 *Enclosure of space under stairs.*

(1) The space below a flight of stairs of a required fire-isolated stairway, if such space is within the fire-isolated shaft, shall not be enclosed to form a cupboard or similar enclosed space.

Fire-isolated stairways.

Non-fire-isolated stairways.

(2) The space below a flight of stairs of a non-fire-isolated stairway (including an external stairway) serving as a required exit shall not be enclosed to form a cupboard or other enclosed space unless –

(a) the enclosing walls and ceilings have a fire-resistance rating of not less than one hour; and

24.19 (2) *(Cont)*

(b) any access doorway to the enclosed space is fitted with a self-closing fire door having a fire-resistance rating of not less than one hour.

24.20 (1) This clause shall apply to doorways and doors – *Doorways and doors.*

(a) serving as required exits; or

(b) forming part of a required exit. *Application of regulation.*

(2) A revolving door or roller shutter shall not be fitted to a doorway referred to in sub-clause (1). *Revolving doors and roller shutters.*

(3) A sliding door shall not be fitted to a doorway referred to in sub-clause (1), other than one leading to a road or open space, and any such door, if power-operated, shall be so constructed that in the event of malfunction or failure of the power source, it may be opened manually under a force of not more than 110 N. *Sliding doors.*

(4) A swinging door fitted to a doorway referred to in sub-clause (1) – *Swinging doors.*

(a) shall not, at any part of its swing, encroach by more than 510 mm on the required width of a required stairway or ramp, including the landings thereof; and

(b) shall not, when fully open, encroach more than 100 mm on the required width of a required exit,

the measurement of encroachment in each case to include door handles or other furniture or attachments to the door.

(5) A swinging door fitted to a doorway referred to in sub-clause (1) shall swing in the direction of egress except in the case of – *Direction of swing.*

(a) a doorway opening to a sanitary compartment; and

(b) a doorway opening to a road, open space, or external balcony, in which case the door may swing against the direction of egress if fitted with an approved means of fixing it readily in the fully open position;

(c) a doorway opening into a public footpath, road or public space may not encroach over such public footpath, road or public space when in the fully open-position;

(d) a door serving an exit from a sole occupancy unit in a Class II or III building

(6a) A door referred to in sub-clause (1) shall be readily openable, without a key and by single handed action, from the side that would face any person seeking egress from the building. *Operations of latch.*

24.21 (1) The threshold of a doorway serving as required exit or forming part of a required exit shall not, except as in sub-clause (2), *Threshold. Incorporation of steps or ramps.*

24.21 (1) *(Cont)* incorporate a step or ramp at any point closer to the doorway than the width of the door leaf.

Doorways opening to exterior of building.

(2) A doorway opening to a road, open space, or external balcony shall not be subject to sub-clause (1) if the door sill is not more than 190 mm above the finished surface of the ground, balcony, or the like to which the doorway opens.

24.22 *Egress to open space.* Where a required exit leads to an open space that is at a different level to the public road to which it is connected, a path of travel to the road shall be provided by way of –

(a) a ramp or other incline having a grade of not more than 1 in 8 at any part; or

(b) a stairway complying with the relevant provisions of this Part.

24.23 *Widths of stairways.*

To be measured clear of obstructions.

(1) The required widths of stairways (as represented by the letter "W" in figure 24.23) shall be measured clear of all obstructions, such as handrails, projecting parts of balustrades, and the like, and shall extend without interruption, except for ceiling cornices, to a height not less than 2030 mm vertically above a line along the nosings of the treads, or the floor of the landing, as the case requires.

Exceeding 2040 mm.

(2) A stairway that exceeds 2040 mm in unobstructed width shall be deemed to have a width of 2040 mm unless –

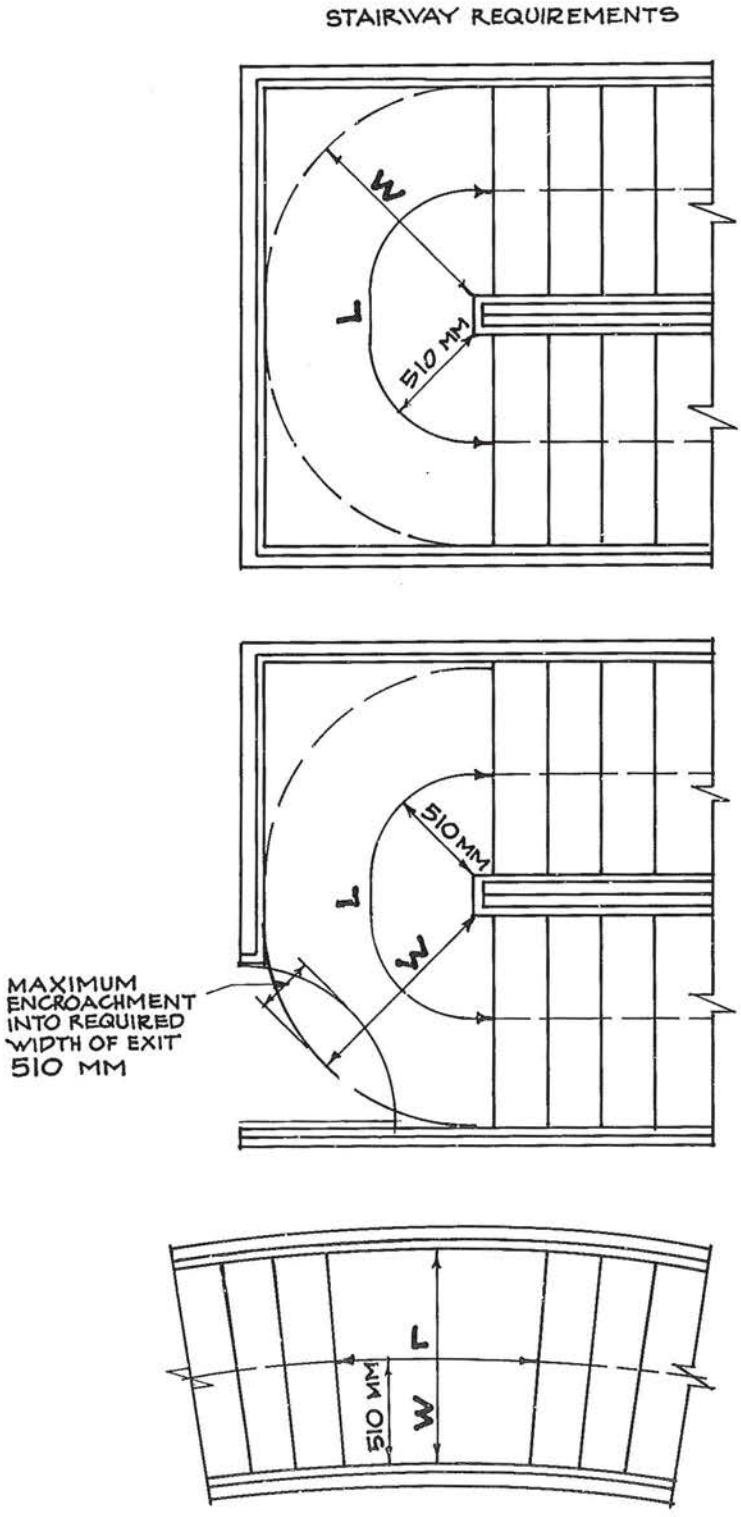
(a) it is divided into sections by a balustrade or handrail continuous between landings; and

(b) each such section is not less than 1020 mm in width,

in which case the full unobstructed width of the stairway may be counted for the purposes of this Part.

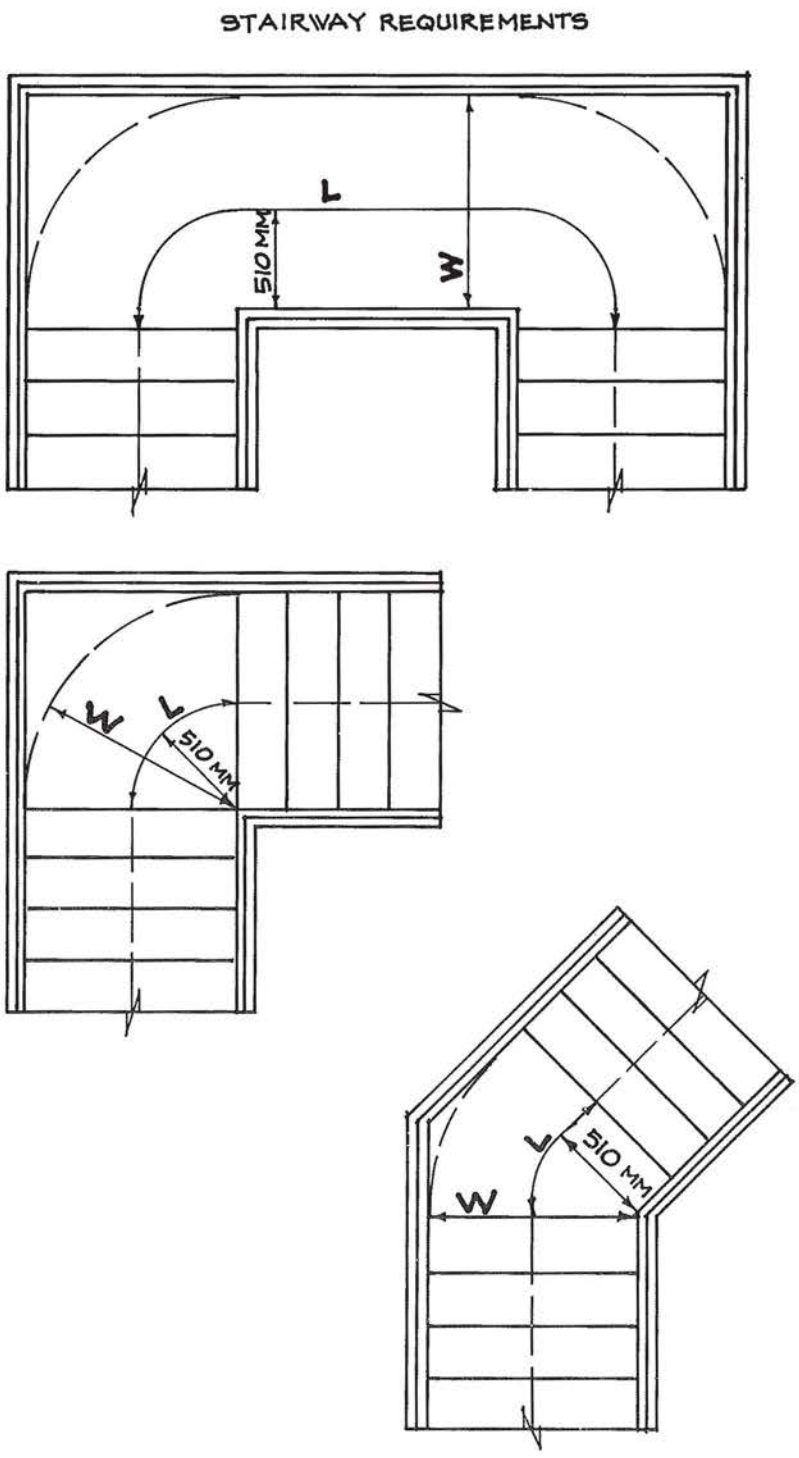
Stairway Requirements

Figure 24.23 – Illustrating Clause 24.23.



Stairway Requirements

Figure 24.23 – Illustrating Clause 24.23.



24.24 (1) Every stairway serving as a required exit shall be provided with landings, where necessary, to limit the number of risers in a flight of stairs to 18. *Landings. Between flights.*

(2) The length of travel along a landing measured 510 mm from the inside edge of the landing (as represented by the letter "L" in figure 24.23) shall be not less than 760 mm. *Length.*

(3) Landings shall be provided with a non-slip finish throughout or with an approved non-skid strip near the edge of the landing where it leads to a flight of stairs below. *Surface finish.*

24.25 (1) The flight of a required stairway shall have not more than 18 or less than 2 risers. *Treads and risers. Number in a flight.*

(2) The going and riser height of a flight of stairs in a required stairway shall be constant throughout that flight. *Going and riser height.*

(3) The treads of a flight of stairs in a required stairway shall – *Construction of treads.*

(a) be constructed within the limits of shape and size illustrated in Figure 24.25 and specified in Table 24.25; and

(b) be provided with a non-slip finish throughout or with an approved non-skid strip near the edge of the nosings.

(4) The risers of a flight of stairs in a required stairway shall be constructed within the limits of shape and size illustrated in Figure 24.25 and Table 24.25. *Construction of risers.*

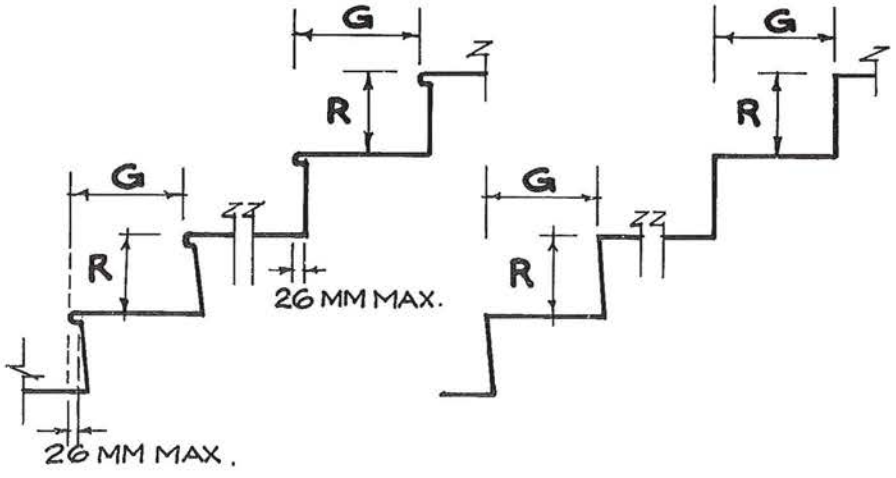
(5a) Nothing in this clause shall be deemed to prevent the space between the treads of a stairway (referred to herein as risers) from being completely open, as may be considered satisfactory by the Commission. *Risers may be open.*

Table 24.25

LIMITS OR RISER HEIGHT AND GOING

Shape of treads in plan	Riser height R in mm		Going G in mm		Quantity 2R + G			
	Max.	Min.	Max.	Min.	Max.		Min.	
Rectangular	190	115	395 Wide end of tread	255 Narrow end of tread	625 Wide end of tread		585 Narrow end of tread	
					Max.	Min.	Max.	Min.
Tapered as in a curved stairway ...	190	115	445	205	675	625	590	545

Figure 24.25 – Illustrating Sub-clause (3) (a) and (4) of Clause 24.25



24.26 (1) The width of a ramp serving as a required exit shall be measured clear of all obstructions, such as handrails, projecting parts of balustrades, and the like, and shall extend without interruption except for ceiling cornices, to a height of not less than 2030 mm vertically above the floor surface of the ramps.

Ramps: general requirements.

Measurement of width.

(2) The slope of a ramp serving as a required exit shall have a grade of not more than 1 in 8 in any part.

Gradient.

(3) The floor surface of a ramp shall have a non-slip finish.

Surface finish.

24.27 (1) A handrail or balustrade shall be provided along every side of any required stairway or ramp, and any corridor, hallway, external access balcony, or bridge, or the like, leading to an exit, if that side is not bounded by a wall and is more than 915 mm (or 5 risers in the case of a stairway) above the finished surface of the adjoining floor or ground, as the case may be.

Handrails and balustrades.

Where stairway, etc. not bounded by a wall.

(2) A handrail shall be provided along at least one side of every flight of stairs in a required stairway and where the flight is 1525 mm or more in width, a handrail shall be provided along each side.

Number of handrails.

(3) Required handrails shall be fixed at a vertical height of –

Height etc. of handrails.

(a) not less than 865 mm above:

(i) the nosings of stair treads; and

(ii) the floor surface of ramps, landings, corridors, hallways, and the like; and

(b) not less than 1050 mm above the floor surfaces of any external access balconies, bridges and the like, or the nosings of non-required external stairs,

with the space between the handrail and the floor or treads having no opening wider than 125 mm; and

(c) the handrail shall be so constructed that there will be no obstruction on or above them that will tend to break a hand hold.

(4) Every required handrail to stairs shall be continuous between stair flight landings.

Handrails to be continuous between landings.

(5) Every required external stairway, whenever it is unenclosed shall have a balustrade along each side of the stairs.

(a) The balustrade required in this sub-clause shall –

(i) be not less than 1050 mm in vertical height above the nosings of the stair treads;

(ii) have no opening therein wider than 125 mm.

24.28 *Widths of exits according to number of persons.*

(1) This clause shall apply wherever this Part specifies the minimum width of required exits or doorways leading to required exits according to the number of persons accommodated in a storey.

Application of clause.

Calculation of number accommodated.

(2) The number of persons deemed to be accommodated in a storey shall be the sum of the numbers obtained by dividing the floor area of each portion of the storey by the relevant number of square metres per person listed in Table 24.28 according to the use or proposed use of that portion.

Occupancy use not listed.

(3) Where a particular use or portion of a storey is not listed in Table 24.28, the number of square metres per person to be used in the calculation shall be as determined.

(4) In this clause the floor area of a storey or portion of a storey shall exclude spaces set aside for –

(a) lifts, stairs and escalators;

(b) corridors, hallways, lobbies, and the like;

(c) service ducts and the like; and

(d) sanitary compartments or other ancillary uses.

Table 24.28

AREAS PER PERSON ACCORDING TO USE

Type of use	Square metres per person
Assembly room for-	
(a) civic, political, transit, religious, social or recreational purposes	1.2
(b) entertainment or amusement	1.2
Bar	1
Boiler	30
Board room	2
Boarding-house	15
Cafe	1
Cafeteria	1
Computer room	25
Dining room	1
Factory-	
(a) a machine shop, fitting shop, or like place for cutting, grading, finishing or fitting of metals or glass, except in the fabrication of structural steelwork or manufacture of vehicles or bulky products	5
(b) areas used for fabrication and processing other than those in (a).	50
(c) a space in which the layout and natural use of fixed plant or equipment determine the number of persons which will occupy the space during working hours.	The area per person determined by the natural use of the fixed plant or equipment and as approved by the Council.
Garage – public	30
Guest-house	15
Hostel	15
Kiosk	1
Kitchen	10
Laboratory	10
Laundry	10
Library–	
reading space	2
storage space	30
Office, including one for typewriting or document copying	10
Plant room for–	
ventilation, electrical or other service units	30
boilers or power plant	50
Reading room	2
Restaurant	1
Shop – space for sale of goods–	
(a) at a level entered direct from the open air or any lower level	1.5
(b) all other levels	3
Showroom – display area	5
Staff room	10
Storage space	30
Switch room	30
Telephone exchange – private	30
Transformer room	30
Workshop–	
for maintenance staff	30
for manufacturing processes	As for "Factory".

24.29 *Exit signs.*

Application of clause.

(1) The provisions of this clause are subject to the concessions set out in sub-clause (6) in regard to Class II buildings and sub-clause (7) in regard to the entrance doors of certain sole-occupancy units.

Provision of sign at certain exits.

(2) Exit signs shall be provided in the following positions:

(a) on or near every door affording direct access from a storey to –

(i) an enclosed stairway or ramp serving as a required exit;

(ii) an external stairway serving as a required exit; and

(iii) an external access balcony leading to a required exit.

(b) on or near every door discharging from an enclosed stairway or ramp at every level of access to a road or open space.

In corridors, etc., under certain conditions.

(3) Exit signs shall also be installed in corridors, hallways, lobbies, and the like, indicating the direction of a required exit, if the exits will not otherwise be readily apparent to persons occupying or visiting the building.

(4) A required exit sign shall –

(a) in the cases referred to in sub-clause (2) be installed on or near the doorway concerned in such a position as to be clearly visible to persons approaching the exit or external balcony, as the case may be;

(b) in the cases referred to in sub-clause (3) be installed in approved positions; and

(c) be illuminated in accordance with the provisions of clause 55.13.

Details on signs.

(5) Every sign required by this clause shall –

(a) conform with the details and dimensions of Figure 24.29 and Table 24.29; and

(b) contain only the word "EXIT", together with an arrow where necessary to indicate the direction of exit.

Figure 24.29 as required under sub-clause (5) (a) of clause 24.29.

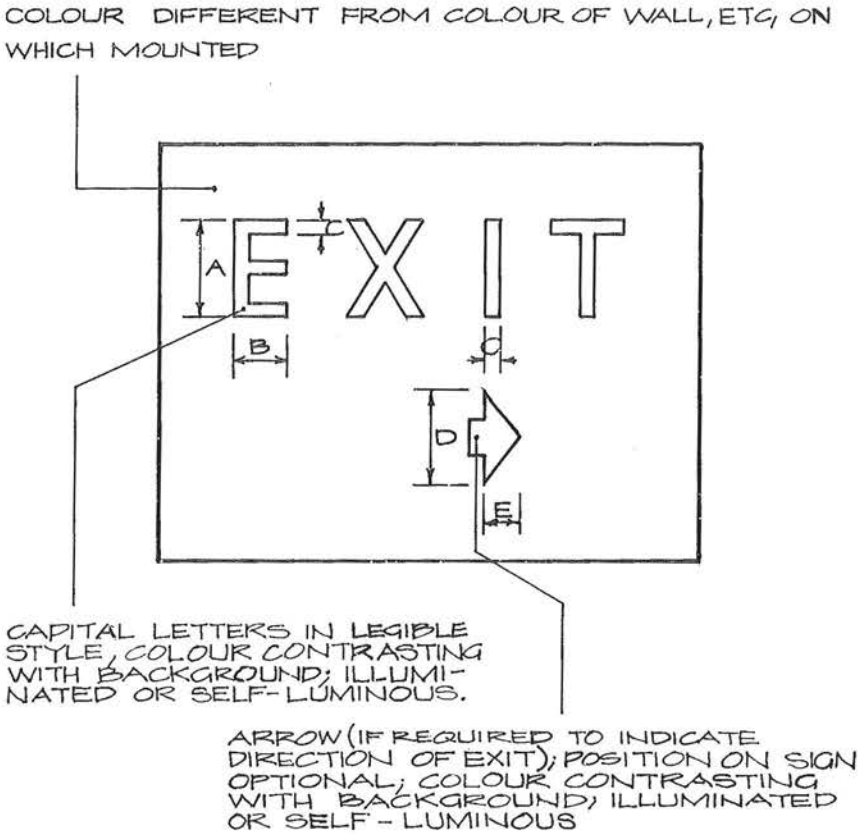


Table 24.29

MINIMUM DIMENSIONS

Dimension	Minimum Value Permitted
A	100 mm
B	½A
C	12 mm
D	100 mm
E	1/3D

24.29 (Cont)

Class II building.

(6) The foregoing provisions shall not apply to a Class II building in which every door referred to in paragraphs (a) and (b) of sub-clause (2) is clearly and legibly labelled on the side remote from the exit or balcony as the case may be, with the word "EXIT" in capital letters 25 mm high in a colour contrasting with that of their background.

Entrance doors to certain sole-occupancy units.

(7) Notwithstanding anything to the contrary in this clause, it shall not be necessary to provide an exit sign on or near an entrance doorway of a sole-occupancy unit in a Class II, III or IV building.

Division 2A – Class I Buildings

24.29a This Division applies to Class I buildings only.

Application of Division.

Types of exits.

(1a) Exits shall comprise –

(a) internal or external stairs;

(b) ramps;

(c) doorways opening to a road or open space;

(d) an internal passageway;

or a combination of two or more exits providing egress from a storey, or space in the nature of a storey, to a road or open space.

Doorways and doors.

(2a) This clause shall apply to doorways and doors serving as part of an exit –

(a) a swinging door fitted to a doorway may open against the direction of egress;

(b) have a clear opening of not less than 198 mm in height and not less than 760 mm in width.

Width of stairs.

(3a) No stair or ramp shall be less than 810 mm in width.

(4a) Wherever the construction of a Class I building, and the location of the egress is such that a single egress is permissible, the Commission may approve the provision of a single egress for that building.

Division 3 – Class II and III Buildings

24.30 *Application of Division.*

This Division, in addition to Division I and Division 2, shall apply to Class II and Class III buildings, but shall not apply to any sole-occupancy unit or room therein which has its own direct acces to a road or open space.

24.31 *Number of exits. Buildings not more than four storeys in rise.*

(1) In a building having a rise of not more than four storeys, one exit only shall be required except where –

(a) the building is subject to sub-clause (2); or

24.31 (1) *(Cont)*

(b) the requirements of clause 24.32 cannot be met by the provision of a single exit.

(2) In a building of Type 4 or Type 5 construction having a rise of two storeys, at least two exits shall be provided. *Buildings of Type 4 and 5 construction and two storeys in rise.*

(3) In a building having a rise of more than four storeys, at least two exits shall be provided. *Buildings more than four storeys in rise.*

24.32 (1) Where only one exit is required in a Class II or Class III building – *Situation of sole-occupancy units, etc.* *Where one exit is permissible.*

(a) the entrance doorway of a sole-occupancy unit shall be not more than 5.5 m from that exit; and

(b) no part of any room, not being a room in a sole-occupancy unit, shall be more than 15 mm from that exit.

(2) Where two or more exits are required in a Class II or Class III building – *Where two or more exits are required.*

(a) the entrance doorway of a sole-occupancy unit shall be not more than 5.5 m from a point from which travel in different directions to two of those exits is available; and

(b) no part of a room, not being a room in a sole-occupancy unit, shall be more than 15 m from a point from which travel in different directions to two of those exits is available.

24.33 Where two exits are required to serve as alternative exits in relation to any room of sole-occupancy unit in a Class II or Class III building, the distance between those two exits shall be not more than 45 m, and in a Class III building the distance between the two exits shall be not less than 9 m. *Distance between alternative exits.*

24.34 (1) In this clause the "nearest part of an exit" shall mean – *Measurement of distances.* *"Nearest part of an exit" defined.*

(a) in the case of a fire-isolated stairway, fire-isolated passageway, or fire-isolated ramp, the nearest part of the doorway providing access thereto;

(b) in the case of a non-fire-isolated internal or external stairway, the nearest part of the nearest riser;

(c) in the case of a non-fire-isolated ramp, the nearest part of the junction of the floor of the ramp and the floor of the storey concerned; and

(d) in the case of a doorway opening to a road or open space, the nearest part of that doorway.

(2) In measuring the distances referred to in clauses 24.32 and 24.33, the following rules shall apply: *Methods of measurement.*

24.34 (2) *(Cont)*

(a) in the case of a room, not being a sole-occupancy unit, the distance shall include the straight-line measurement from any part of the room to the nearest part of a doorway leading therefrom, together with the distance from such part of the doorway to the single required exit or point from which travel in different directions to two required exits is available, as the case requires.

(b) the distance from the doorway of a room or sole-occupancy unit shall, subject to paragraph (d), be measured in a straight line to the nearest part of the required single exit or point from which travel in different directions to two required exits is available, as the case requires.

(c) the distance between two required exits shall, subject to paragraph (d), be measured in a straight line between the nearest parts of those exits.

(d) where a corridor, hallway, external balcony, or other path of travel leading to a required exit or connecting two required exits, includes a curve or change of direction, the distance shall include the shortest measurement along the corridor or other path of travel, whether by curves, or straight lines, or a combination of both.

24.35 *Alternative, exits to discharge separately.*

Where two or more exits are required in a Class II or Class III building, they shall provide separate egress to a road or open space and at the level of discharge shall not be connected by any corridor, hallway, lobby or the like other than a fire-isolated passageway, fire-isolated stairway, or fire-isolated ramp.

24.36 *Required stairways in Class II buildings.*

(1) In a Class II building every required stairway shall be a fire-isolated stairway, except as conceded in sub-clause (2).

Where stairways must be fire-isolated.

(2) Non-fire-isolated stairways may serve as required exits in Class II buildings where –

Where non-fire-isolated stairways are permissible.

(a) such stairways connect not more than three storeys, or not more than four storeys if at least one storey is set aside solely for the accommodation of motor vehicles or other ancillary purposes; and

(b) the provisions of regulation 24.38 are met.

24.37 *Required stairways in Class III buildings.*

(1) In a Class III building every required stairway shall be a fire-isolated stairway, except as conceded in sub-clause (2).

Where stairways must be fire-isolated.

(2) Non-fire-isolated stairways may serve as required exits in Class III buildings where –

Where non-fire-isolated stairways are permissible.

(a) such stairways connect not more than two storeys, or not more than three storeys if at least one storey is set aside solely for the accommodation of motor vehicles or other ancillary purposes; and

24.37 (2) (Cont) (b) the provisions of clause 24.38 are met.

24.38 (1) The distance between the doorway of a room or sole-occupancy unit and the point of egress to a road or open space by way of any stairway that is non-fire-isolated and is required to serve that room or sole-occupancy unit shall not exceed –

Non-fire-isolated stairways; conditions to be met.

Travel distance to road or open space.

(a) 30 m in a building of Type 4 or Type 5 construction; and

(b) 60 m in all other cases.

(2) For the purposes of sub-clause (1), the distance to a stairway shall be measured in accordance with clause 24.34, the remainder of the distance being measured –

Measurement of travel distance.

(a) along the shortest line of travel to the road or open space; and

(b) in the case of the treads and risers of a stair, along a line connecting the nosings of the treads.

24.39 (1) In a Class II or Class III building, every doorway –

Dimensions of doorways, exits and paths of travel.

Doorways.

(a) serving as a required exit from a storey; or

(b) leading to or forming part of a required exit or path of travel to an exit;

shall have a clear opening of not less than 1980 mm in height and not less than 760 mm in width.

(2) In a Class II or Class III building, every required exit and path of travel to an exit shall, except for doorways, have a minimum unobstructed width throughout of 1020 mm.

Exits and paths of travel.

24.39a Wherever the public has general access to a building of Class III, provision shall be made for access for handicapped persons in accordance with the provisions of Australian Standard AS CA52 – Design for Access by Handicapped Persons – unless by reason of unlikelihood of demand, or alternative provision in other buildings, as the Commission may consider.

Access for handicapped persons.

Division 4 – Class V, VI, VII and VIII Buildings

24.40 This Division, in addition to Division 1 and Division 2, shall – apply to Class V, VI, VII, VIII buildings and any Class IV portion thereof.

Application of division.

24.41 (1) In a building having a rise of not more than four storeys, one exit only shall be required except where –

Number of exits required: buildings not more than four storeys in rise.

(a) the building is subject to sub-clause (2); or

(b) the requirements of sub-clause (1) of clause 24.42 cannot be met by the provisions of a single exit.

(2) Where egress from a storey would involve a vertical rise within the building of more than 1.5 m, at least two exits shall be provided from that storey.

Certain storeys at low level to have two exits.

24.41 (3) In a building having a rise of more than four storeys, at least two exits shall be provided.

(Cont) Buildings more than four storeys in rise.

24.42 (1) Where only one exit is provided in a Class V, VI, VII or VIII building, no point on a floor shall be more than 18 m from that exit.

Situation of parts of building in relation to exits.

Where one exit is permissible.

(2) Where two or more exits are provided, no point on a floor shall be more than 18 m from –

Where two or more exits are required.

(a) one of those exits; or

(b) a point from which travel in different directions of two of those exits is available, in which case the maximum distance to one of those exits shall not exceed 40 m.

Class VI buildings distance to single exit in ground storey.

(3) In a Class VI building, the distance to a single exit serving a storey at the level of access to a road or open space may be increased to 30 m.

Class IV portions of buildings – distance to exits etc.

(4) The entrance doorway to a Class IV portion of a building shall be situated at a distance of not more than 5.5 m from –

(a) an exit; or

(b) a point from which travel in different directions to two exits is available.

24.43 (1) Where two exits are required to serve as alternative exits in relation to any point on the floor of a storey, the distance between those two exits shall not exceed 60 m.

Distance between alternative exits.

Maximum distance.

(2) Where two or more exits are required to serve a storey, the minimum distance between two of them shall be not less than 6 m.

Minimum distance

24.44 (1) In this clause the "nearest part of a required exit" shall have the meaning ascribed to "nearest part of an exit" by sub-clause (1) of clause 24.34.

Measurement of distance, nearest part of an exit.

Method of measurement.

(2) In measuring the distances referred to in clause 24.42 and 24.43, the following rules shall apply:

(a) in the case of a room, the distance shall include the straight-line measurement from any part of the room to the nearest part of a doorway leading therefrom, together with the distance from that part of the doorway to –

(i) the nearest part of a required exit; or

(ii) a point from which travel in different directions to two required exits is available, as the case requires;

(b) the distance from the doorway of a room, or of a Class IV portion of the building, or from a point on the floor not

24.44 (2) (b) *(Cont)*

within a room shall, subject to paragraphs (d), (e) and (f), be measured in a straight line to –

(i) the nearest part of a required exit; or

(ii) a point from which travel in different directions to two required exits is available;

as the case requires.

(c) The distance between two required exits shall, subject to paragraphs (d), (e) and (f), be measured in a straight line between the nearest parts of those exits.

(d) Where a corridor, hallway, external balcony, or other path of travel leading to a required exit or connecting two required exits, includes a curve or change of direction, the distance shall include the shortest measurement along the corridor or other path of travel, whether by curves, or straight lines, or a combination of both.

(e) Where more than one corridor, hallway, or other internal path of travel connects two required exits, the measurement shall be along the path of travel producing the greatest distance.

(f) Where a wall (including a demountable partition wall) that does not bound –

(i) a room; or

(ii) a corridor, hallway or the like,

necessitates a change in direction in proceeding to a required exit, the distance shall be measured along the line of travel past that wall or partition.

Types of stairways required.

24.45 In a Class V, VI, VII or VIII building, required stairways –

(a) may be non-fire-isolated if the building contains not more than two storeys; and

(b) shall be fire-isolated in all other cases.

Dimensions of doorway, generally.

24.46 (1) Every doorway –

(a) serving as a required exit from a storey; or

(b) leading to or forming part of a required exit or path of travel to an exit;

shall have a clear opening of not less than 1980 mm in height and not less than 760 mm in width, this width to be increased, where necessary, to comply with sub-clause (2) or sub-clause (3) as the case may be.

Leading to road etc., from storeys with large populations.

(2) Where, pursuant to clause 24.28, a storey at the level of access to a road or open space is deemed to accommodate more than 100 persons –

24.46 (2) *(Cont)*

(a) the unobstructed width of a doorway serving as the only exit from that storey; and

(b) the sum of the clear widths of two or more doorways serving as required exits from that storey;

shall be not less than 760 mm plus 255 mm for every 25 persons (or part of 25 persons) in excess of 100.

Leading to or from stairway of ramp.

(3) Where, pursuant to clause 24.48, a stairway or ramp is required to be more than 1020 mm in clear width at any level, the following doorways leading to or from the stairway or ramp shall have the minimum widths listed –

(a) a doorway providing direct access from a storey – 255 mm less than the required width of the stairway or ramp at that storey level;

(b) a doorway providing direct access from the stairway or ramp at the level of access to a road or open space – 255 mm less than the required width of the stairway or ramp at that level.

24.47 *Dimensions of paths of travel.*

Every required path of travel to an exit shall, except for doorways, have a minimum unobstructed vertical clearance throughout of 2030 mm and a minimum unobstructed width throughout of 1020 mm.

24.48 *Dimensions of exits. Vertical clearance.*

(1) Every required exit shall, except for doorways, have a minimum unobstructed vertical clearance throughout of 2030 mm.

Minimum widths.

(2) Every required exit shall, except for doorways, have a minimum unobstructed width throughout of 1020 mm and this width shall be increased, if necessary, to meet the provisions of subclause (3).

Width to be sufficient to accommodate all persons in a storey.

(3) Where, pursuant to clause 24.48, a storey is deemed to accommodate more than 100 persons and not more than 200 persons –

(a) the width of a single stairway or ramp serving that storey (if only one such exit is required); and

(b) the sum of the widths of two or more stairways or ramps required to serve that storey;

shall, at the level of entry from that storey concerned, be not less than the relevant dimension set out in Table 24.48, according to the number of persons deemed to be accommodated in that storey, and where the number of persons deemed to be accommodated exceeds 200, the relevant width shall be 2040 mm plus 255 mm for every 25 persons (or part of 25 persons) in excess of 200.

Width not to diminish in direction of travel.

(4) The required width of a required stairway or ramp shall not diminish in the direction of travel to a road or open space.

Notes:

Table 24.48

WIDTH OF STAIRWAYS OR RAMPS ACCORDING TO NUMBER OF PERSONS ACCOMMODATED IN A STOREY

Number of persons accommodated according to Clause 24.28		Aggregate width
Exceeding	Not exceeding	
	100	mm 1020
100	125	1275
125	150	1530
150	175	1785
175	200	2040

Division 5 – Class IX Buildings

24.50 This Division, in addition to Division 1 and Division 2, shall apply to Class IX buildings. *Application of Division.*

24.51 (1) The means of egress from a Class IXa building shall be as required by this clause. *Egress from Class IXa buildings.*

(2) Two exits at least, are required from each storey and mezzanine, except where the total floor area of the storey or mezzanine does not exceed 60 m^2, then only one exit is required from that storey or mezzanine, unless subject to the provisions of sub-clause (3) hereof – *Number of exits required.*

(3) Where egress from a storey would involve a vertical rise within the building of more than 1.5 m, at least two exits are required from that storey. *Certain storeys at low level to have two exits.*

(4) Where only one exit is required, no point on a floor shall be more than 18 m from that exit. *Where one exit is permissible.*

(5) Where two or more exits are required, no point on a floor shall be more than 18 m from – *Where two or more exits are required.*

(a) one of those exits; or

(b) a point from which travel in different directions to two of those exits is available, in which case the total distance from any point on a floor to the nearest of those exits shall not exceed 40 m.

24.51 *(Cont)*

(6) Where two exits are required to serve as alternative exits in relation to any point on the floor of a storey or mezzanine, the distance between those two exits shall not exceed 60 m.

Maximum distance between alternative exits.

(7) Where two or more exits are required to serve a storey or mezzanine the distance between any two of them shall not be less than 9 m.

Minimum distance between alternative exits.

(8) In this clause, the "nearest part of an exit" shall have the meaning ascribed to it by sub-clause (1) of clause 24.34.

Measurement of distances. Nearest part of an exit.

(9) In measuring the distance referred to in clause 24.51a(4) and (5) and 24.51a(6) and (7), the following rules shall apply –

Method of measurement.

(a) In the case of a room, the distance shall include the straight-line measurement from any part of the room to the nearest part of a doorway leading therefrom, together with the distance from that part of the doorway to:

(i) the nearest part of a required exit; or

(ii) a point from which travel in different directions to two required exits is available,

as the case requires.

(b) The distance from the doorway of a room, or of a Class IV portion of the building, or from a point on the floor not within a room, shall, subject to paragraphs (d), (e) and (f), be measured in a straight line to:

(i) the nearest part of a required exit; or

(ii) a point from which travel in different directions to two required exits is available,

as the case requires.

(c) The distance between two required exits shall, subject to paragraphs (d) and (e), be measured in a straight line between the nearest parts of those exits.

(d) Where a corridor, hallway, external balcony, or other path of travel leading to a required exit or connecting two required exits, includes a curve or change of direction, the distance shall include the shortest measurement along the corridor or other path of travel, whether by curves, or straight lines, or a combination of both.

(e) Where a wall (including a demountable partition wall) that does not bound:

(i) a room; or

(ii) a corridor, hallway, or the like;

necessitates a change of direction in proceeding to a required exit, the distance shall be measured along the line of travel past the wall or partition.

24.51 (9) *(Cont)*

(f) Where a room in a Class IXa building has permanently fixed seating the distance from a point on a floor in that room to an aisle leading to an exit shall be measured along the curve of the plan of the seats to the nearest aisle which is accessible without obstruction.

(g) No point on a floor of a room which has permanently fixed seating in a Class IXa building shall be more than 13 m from an aisle leading to an exit.

Types of stairways required.

(10) In a Class IXa building required stairways –

(i) may be non-fire-isolated if the building contains not more than two storeys, or if the stairways lead from a mezzanine to the floor of the storey in which it is situated; and

(ii) shall be fire-isolated in all other cases.

Dimensions of doorways generally.

(11) Every doorway –

(a) serving as a required exit from a storey; or

(b) leading to or forming part of a required exit or path of travel to an exit,

shall have a clear opening of not less than 1980 mm in height and not less than 790 mm in width, this width to be increased where necessary, to comply with paragraph (c) or paragraph (d) as the case may be.

Leading to road etc. from storeys with large populations.

(c) Where pursuant to clause 24.28 a storey at the level of access to a public place or open space is deemed to accommodate more than 100 persons –

(i) the clear width of a doorway serving as the only exit from that storey; and

(ii) the sum of the clear widths of two or more doorways serving as required exits from that storey,

shall be not less than 790 mm plus 255 mm for every 25 persons (or part of 25 persons) in excess of 100.

24.52 (1) This clause shall apply to Class IXb buildings for means of egress. *Class IXb buildings. Egress from Class IXb buildings.*

Rooms in the second or higher storey.

(2) Any room situated in the second or higher storey which –

(a) is designed, intended or adapted to be used as an assembly room for –

(i) civil, political, transit, religious, social or recreational purposes; or

(ii) entertainment or amusement; and

(b) has a floor area of 42 m^2 or more,

shall be provided with two egress doorways.

24.52 *(Cont)*

(3) If the room referred to in sub-clause (2) is situated in the third or higher storey, that storey shall be served by two fire-isolated stairways.

Stairways from third or higher storey.

Width of doorways.

(4) The doorways referred to in sub-clause (2) shall have a minimum aggregate width calculated in the proportion of 510 mm for every 55 m^2 of floor area in the room and no doorway shall be less than 1020 mm in width.

Dimensions of paths of travel.

(5) Every path of travel from a room referred to in sub-clause (2) to a required stairway shall except for doorways have a minimum unobstructed vertical clearance throughout of 2040 mm and a minimum unobstructed width throughout of 1020 mm.

Minimum dimensions of stairways.

(6) Every required stairway shall have a minimum unobstructed width throughout of 1020 mm and this width shall be increased where necessary, to meet the provisions of sub-clause (7).

Storey deemed to accommodate more than 100 persons.

(7) Where, pursuant to clause 24.28, a storey containing a room referred to in sub-clause (2) is deemed to accommodate –

(a) more than 100 persons and not more than 200 persons, the aggregate width of the required stairway shall, at the level of entry from that storey, be not less than the relevant dimension set out in Table 24.52 according to the number of persons deemed to be accommodated in that storey;

(b) more than 200 persons, the aggregate width of the required stairways shall, at the level of entry from that storey, be 2040 mm plus 255 mm for every 25 persons (or part of 25 persons) in excess of 200.

Doors.

(8) All doors fitted to egress doorways in a room referred to in sub-clause (2) shall, except where otherwise approved, be hung in two folds, fitted with "panic" bolts and be made to open outwards. A door shall not open immediately upon a flight of stairs, but a landing shall be provided between such stairs and such doorway.

Table 24.52A

WIDTH OF STAIRWAYS ACCORDING TO NUMBER OF PERSONS ACCOMMODATED IN A STOREY

Number of persons accommodated according to Clause 24.28		Aggregate width
Exceeding	Not exceeding	
		mm
	100	1020
100	125	1275
125	150	1530
150	175	1785
175	200	2040

(9) No point on a floor of a room which has permanently fixed seating in a Class IXb building shall be more than 13 m from an aisle leading to an exit. *Distance from aisle for seating.*

(10) Wherever the public has general access to a building of Class IXb, provision shall be made for access for handicapped persons in accordance with the provisions of Australian Standard AS CA52 – "Design for Access by Handicapped Persons" – unless otherwise by reason of unlikelihood of demand, or alternative provision in other buildings, as the Commission may consider. *Access for handicapped persons.*

GROUP V – FIRE SAFETY AND FIRE RESISTANCE

Application of Part

Part 25 – Chimneys, Flues, Fireplaces, Stoves and Similar Features

25.1 Every chimney, flue, fireplace, stove, heating appliance and similar feature that is situated within or forms part of a building of any of the Classes I to X inclusive shall comply with such of the provisions of this Part as are applicable thereto.

25.2 A gas stove, gas heater or other gas-burning appliance shall be installed in accordance with – *Gas burning appliances.*

(a) the provisions of the Australian Gas Association – Australian Liquefied Petroleum Gas Association Code; and *Installation.*

(b) any relevant installation requirements laid down by or under any authority relating to the supply of gas in the area.

25.3 *Domestic-type oil-heaters.* A domestic-type oil-heating appliance shall be provided with a flue and the appliance, together with its flue and other associated fittings, shall be installed in accordance with Australian Standard CB 21, "SAA Oil Heating Appliances Installation Code".

25.4 *Domestic-type solid-fuel appliances.* A domestic-type solid-fuel-burning appliance shall be provided with a flue and the appliance, together with its flue, shall be installed in accordance with Australian Standard CB 21, "SAA Oil Heating Appliances Installation Code", as though it were an oil-heating appliance, subject to the following conditions:

(a) the minimum distances between the appliance and any nearby combustible material shall be as specified in Appendix A of that Standard;

(b) where the case temperature of the appliance is not known it shall, for the purposes of Appendix A of that Standard, be deemed to have a case temperature exceeding 149°C;

(c) the minimum distances between the appliances and any nearby combustible material may be reduced below the distance specified in such Appendix under the same conditions as those specified for an oil heating appliance by Rule 3.2.1.2. or Rule 3.4.1.2. of that Standard, whichever is appropriate;

(d) the flue shall be constructed of asbestos cement not less than 9.5 mm thick, cast iron or other approved material.

25.5 *Boilers.* A boiler to which Part 1 of Australian Standard CB 1 "SAA Boiler Code" applies shall be provided with a flue and the boiler, together with its flue, shall be installed in accordance with the relevant provisions of that Standard.

25.6 *Hearths.*

When to be provided.

(1) Every open fireplace, and every solid-fuel-burning appliances in which the fuel-burning compartment is not enclosed, shall be provided with a hearth.

Construction.

(2) A required hearth shall be of stone, concrete, masonry or other similar non-combustible material and be so constructed that –

(a) its upper surface does not slope away from the grate or appliance; and

(b) combustible material situated below the hearth shall not be nearer than 155 mm from the upper surface of the hearth, but this requirement shall not apply to combustible material below that portion of the hearth which is required to extend beyond the appliance, fireplace opening, or the limits of the fireplace, as the case required.

Limits of hearth.

(3) A required hearth –

(a) shall extend not less than 300 mm beyond the front of the

25.6 (3) (a) *(Cont)*

fireplace opening and not less than 150 mm beyond each side of that opening; and

(ba) where the fireplace or appliance is free-standing from any wall of the room, shall extend beyond the limits of the fireplace or appliance for a distance of not less than 300 mm.

25.7 (1) A flue shall not be used to convey the hot products of combustion from more than one appliance or fireplace except in the case of – *Chimneys and flues: special requirements.*

(a) gas-burning appliances where the relevant requirements referred to in clause 25.2 permit otherwise; or

(b) boilers referred to in clause 25.5 where Australian Standard CB 1 "SAA Boiler Code" permits otherwise.

(2) A flue or chimney shall not terminate in such a position as to constitute – *Position of terminal.*

(a) a risk of fire to nearby combustible materials; or

(b) a risk of penetration of flue gases through nearby windows or other openings, fresh air inlets, mechanical ventilation inlets or exhausts, or the like.

(3) Where a chimney contains more than one flue, each flue shall extend throughout the full height of the chimney. *Flues to extend to chimney outlet.*

(4) A chimney or flue shall be so constructed that – *Fire-resistance of chimney or flue.*

(a) it is capable of withstanding the temperatures likely to be generated by the appliance or appliances to which it is connected;

(b) the temperature of the exposed faces will not exceed a level that would cause damage to nearby parts of the building; and

(c) the hot products of combustion will not escape through the walls of the chimney or flue;

(d) the flue may be cleaned internally throughout its length.

(5) A flue attached to an appliance referred to in clauses 25.2, 25.3, 25.4 or 25.5 and constructed according to the requirements or Standard to which it is subject pursuant to the clause concerned shall be deemed to comply with sub-clause (4). *Certain flues deemed to comply with sub-clause (4).*

(6) In a Class I or Class X building an open fireplace and a chimney connected thereto that are constructed according to the following rules shall be deemed to comply with sub-clause (4): *Certain chimneys in Class I and X buildings deemed to comply with sub-clause (4).*

(a) Up to the level of 300 mm above the underside of the arch or lintel the walls forming the sides and back of the fire-

25.7 (6) (a) *(Cont)*

place shall be constructed in two separate sections of solid masonry having a total thickness, exclusive of any cavity, of not less than 190 mm.

(b) Concrete masonry shall not be used in the construction of the inner section of the masonry referred to in paragraph (a).

(c) The walls of the fireplace and chimney above the level referred to in paragraph (a) shall be constructed of masonry units having a net volume, exclusive of cored and similar holes, of not less than 75 per centum of their gross volume, measured on the overall rectangular shape of the units, and having an actual thickness of not less than 90 mm.

(d) The chimney shall have its flue lined internally to a thickness of not less than 12 mm with rendering consisting of cement, lime and sand in the proportions of 1 part cement, 3 parts lime, and 10 parts sand by volume, or other approved material.

Evidence of compliance with sub-regulation (4).

(7) In the case of a chimney or flue that is not deemed pursuant to sub-clause (5), or sub-clause (6), to comply with sub-clause (4), the production of satisfactory evidence that the chimney or flue concerned will meet the requirements of sub-clause (4) may be required by the Commission.

Building in of combustible material.

(8) Combustible material shall not be situated nearer to the inner face of a flue or fireplace opening than –

(a) 90 mm in the case of an appliance having an output rating of not more than 55 kW; or

(b) 190 mm in the case of an open fireplace or an appliance having a rating of more than 55 kW but less than 320 kW; or

(c) 280 mm in the case of an appliance having a rating of more than 320 kW.

Damp-proof course and flashing.

(9) A chimney shall be constructed with damp-proof courses and flashings so arranged as to prevent the penetration of rain-water to any part of the interior of the building.

25.8 *Incinerator rooms*

Construction.

(1) Where an incinerator is installed in a separate room within a building that room shall be separated from other portions of the building by construction having a fire-resistance rating of not less than 1 hour.

Construction of chimneys and flues.

(2) The chimney or flue of an incinerator, except an incinerator not forming part of a building, shall comply with the relevant provisions of clauses 25.7.

25.8 *(Cont)* (3) A hopper giving access to a charging chute of an incinerator within or forming part of a building shall be non-combustible; and *Hopper in charging chute.*

(a) shall be gastight when closed;

(b) shall be so designed as to return to the closed position automatically after use;

(c) shall not be attached to a chute that connects directly to a flue except where the hopper is located in the open air; and

(d) shall not be located in a required exit.

25.9 The following shall be constructed and installed according to Part 55: *Ducts and pipes: construction and installation.*

(a) ducts for the movement or carriage of –

(i) air;

(ii) industrial wastes;

(iii) dust;

(iv) chemicals;

(v) steam; and

(vi) products of cooking and the like;

(b) steam pipes; and

(c) exhaust pipes for stationary engines.

GROUP V – FIRE SAFETY AND FIRE RESISTANCE

Part 26 – Reserved

GROUP V – FIRE AND FIRE RESISTANCE

Part 27 – Fire-fighting Services and Appliances

27.1 For the purposes of this Part – *Interpretative provisions.*

"fire main" means a wet or dry service pipe connected to a supply and installed within a building or building site for fire-fighting purposes.

"hydrant" means a fire hydrant or plug connected to a fire main or to a water main in a public road, as the case requires. *Fire mains.*

27.2 (1) Where, pursuant to this Manual – *When to be provided.*

(a) hydrants are required to be installed within the building or building site or at roof level,

27.2 (1) *(Cont)* a fire main shall be provided and every such hose reel and fire hydrant shall be connected to that fire main.

For fire-fighting purposes only.

(2) A fire main shall not be designed, constructed or adapted for use for any purpose other than the supply of water for fire-fighting purposes.

Water pressures.

(3) A fire main shall be so designed that –

(a) the static water pressure at the nozzle end of every required hose reel, when fully extended, shall be not less than 200 kPa; at 27.3 L/Min; and

(b) a water pressure of not less than 275 kPa and capable of providing a simultaneous flow rate of not less than 235 1/min through a 63.5 mm hose with a 15.8 mm nozzle shall be available to every required hydrant,

at all times except where abnormal conditions affect the water supply to which the fire main is connected; and

(c) if a building has a rise of more than four storeys, or is subject to the provisions of paragraph (b) of sub-clause (1) of clause 27.4, it is equipped with the necessary valves and connections at a location approved by the Commission at ground level, for the connection of a fire-brigade booster pump.

Certification of design etc.

(4) The applicant shall submit to the Commission a certificate obtained from the Chief Fire Officer to the effect that –

(a) the design of any required fire main meets the provisions of sub-clause (3); and

(b) all required hydrants are accessible and suitable for use in conjunction with the fire hoses of the fire brigade serving the locality.

27.3 (1) In the classes of buildings listed in Table 27.3, hose reels shall be installed in the storeys listed in the second column of that Table.

Hose reels required in certain buildings.

Table 27.3

BUILDINGS IN WHICH HOSE REELS ARE REQUIRED IN CERTAIN STOREYS

Class of Building	Storeys in which hose reels are required.
II	Every storey if the rise in storeys of the building includes more than three storeys of flats.
III	Every storey if the rise in storeys of the building includes more than two residential storeys.
V VI VII	(a) Every storey exceeding 500 m^2 in floor area irrespective of the rise in storeys. (b) Every storey if the building has a rise of more than four storeys.

27.3 *(Cont)*

(2) In those storeys of a building in which hose reels are required pursuant to sub-clause (1) – *Location of hose reels.*

(a) no part of the storey shall be beyond the reach of the nozzle end of a fully extended hose reel installed within the storey; and

(b) every hose reel shall be accessible to all occupants of each part of a storey to reach every portion of that part, but no hose reel shall be installed in any fire-isolated stairway, fire-isolated passageway, or fire-isolated ramp.

(3) Every required hose reel shall – *Standards of construction and installation.*

(a) comply with Australian Standard A155 AS 1221 "Fire Hose Reels"; and

(b) be installed in accordance with the relevant provisions of Australian Standard CA 18 – "Installation of Portable Fire Extinguishers and Hose Reels".

(4) A building may be exempted from any or all of this clause if – *Exemption in certain areas.*

(a) a public water supply is not available; and

(b) any other sufficient water supply is not or cannot reasonably be made available for connection to the building concerned.

27.4 (1) One or more hydrants shall be provided at the level of every storey in the following buildings: *Hydrants required in certain buildings.*

(a) Class II, III, V, VI, VII, VIII and IX buildings having a rise of more than four storeys, irrespective of floor area.

(b) Class VI, VII, VIII and IX buildings in which, irrespective of the rise in storeys, the sum of the floor areas of all storeys exceeds the relevant floor area figure set out in the second column of Table 27.4.

27.4
(Cont)

Table 27.4

HYDRANTS IN BUILDINGS OF CERTAIN FLOOR AREA

(To be installed where total floor area exceeds figure listed in second column.)

Class of building	Floor area figure (square metres)
VI	2000
VII	
(a) For storage or display of goods referred to in first Schedule	2000
(b) Other cases	3000
VIIIa	3000
VIIIb	2000
IXa	3000
IXb	2000

Distance of parts of storeys from hydrants.

(2) In the buildings referred to in sub-clause (1), no part of a storey shall be outside a radius of 36 m from a hydrant installed within that storey.

Hydrants at roof roof level of certain buildings.

(3) In a building having a rise of more than six storeys, in addition to complying with sub-clause (1), one or more hydrants shall be provided at the level of the roof except –

(a) a roof having a pitch of more than 10 degrees; or

(b) a roof of a plant room or other subsidiary structure erected on or above the level of the main roof of the building; or

(ca) where access by stairs is not available, and shall be so located that no part of the roof shall be outside a radius of 36 m from a hydrant.

Distances of certain Class VI, VII, VIII and IX buildings from hydrants.

(4) In a Class VI, VII, VIII or IX building that is not required, pursuant to sub-clause (1) to be provided with internal hydrants and in which the total floor area exceeds 500 m, no part of the building shall be more than 90 m from a hydrant situated –

(a) in the road or public place to which the site has frontage; or

(b) in the building; or

(c) within the site but external to the building.

External hydrants to be provided in certain cases.

(5) Where, pursuant to this clause –

(a) hydrants are required to be installed within a building; and

27.4 (5) *(Cont)*

(b) every entrance to the building is more than 90 m from a hydrant situated in the road to which the site has frontage,

one or more hydrants shall be provided additionally on the site (but external to the buildings), the number and location of such hydrants to be determined by the Chief Fire Officer, and approved by the Commission.

Measurement of distances from hydrants.

(6) For the purposes of sub-clause (4) and (5) the distance of any part of a building from a hydrant shall be measured as follows:

(a) in a straight line between the hydrant and the part of the building concerned if the part is in a storey providing direct access to the hydrants; and

(b) in other cases by adding together –

(i) the distance, in a straight line, between the hydrant and the nearest stairway or ramp leading to the storey concerned;

(ii) the distance between the landing of the stairway or ramp at the level of access to the hydrant and the landing of the storey concerned, the distance being measured in the case of stairways along the nosings of the treads; and

(iii) the distance, in a straight line, from the relevant landing to the part of the building concerned.

Use by fire brigade personnel.

(7) Every required hydrant shall be –

(a) suitable for the connection of the fire hoses of the fire brigade serving the locality; and

(b) installed in a position that is accessible to fire brigade personnel, but shall not be installed in a fire-isolated stairway, fire-isolated passageway, or fire-isolated ramp.

Exemption from provision of hydrants.

(8) The Council may grant exemption from provisions of this clause if –

(a) a public water supply is not or cannot reasonably be made available,

for use on the site concerned.

Sprinklers in buildings over certain height.

27.5 Where the floor of the topmost storey of a building is more than 42 m above the floor of the lowest storey providing egress to a road or open space, an approved sprinkler system shall be installed throughout the building.

Variation of requirements.

27.6 The Council may exempt a building from any of the requirements of this Part upon production of a certificate, issued by the Board of Fire Commissioners, recommending such exemption in the particular case any subject to compliance with any alternative requirements recommended by the Board.

27.7 *Provision for special hazards.*

Reference to fire authorities.

(1) Where in a particular proposed Class VII or Class VIII building, special problems of fighting fires could arise because of the nature or quantity of materials stored or displayed, or used in a handicraft or process the proposal shall be referred to the Chief Fire Officer for a report, for the Commissions consideration.

(2) After consideration of a report by the Chief Fire Officer pursuant to sub-clause (1), and special requirements to facilitate the fighting of fire are considered desirable, the Commission may approve such other requirements.

GROUP VI – STRUCTURAL PROVISIONS

Part 28 – Materials

28.1 (1) All materials used in a building shall comply with the provisions of the relevant Australian Standard for that material. *Materials to comply.*

(2) Where it is proposed to use in a building any material not covered by an Australian Standard, the submission of satisfactory evidence to show that the material will be suitable for the purpose for which it is intended, will be required and it shall be subject to any requirements specified elsewhere in this Manual as may be relevant thereto.

GROUP VI – STRUCTURAL PROVISIONS

Part 29 – Stresses and Load Factors

29.1 (1) The working stresses, limiting stresses, deflections and load factors used for materials or forms of construction shall be in accordance with the relevant Australian Standard. *Stresses, deflections and load factors.*

(2) Where a material or form of construction is not covered by an Australian Standard, test evidence carried out by a laboratory registered by the National Association of Testing Authorities for such testing, may be accepted.

29.2 (1) On completion of any Class V, VI, VII, VIII or IX building and before occupation of any such building, any floor or part of a floor which has been designed to sustain a uniformly distributed live load exceeding 5.0 kPa shall have a notice conspicuously and permanently posted adjacent thereto in the form hereunder indicating the actual loadings for which the floor or part of the floor has been structurally designed, and the part of the floor affected. *Required loading notice plates.*

DESIGNED FLOOR LOADING

Distributed ..... kg/m²

Concentrated..... kg

Part of floor affected.....

(2) The lettering of such notice shall be embossed or cast into a metal tablet not less than 230 mm square and located not less than 1 m above floor level. *Design and position of notice plates.*

GROUP VI – STRUCTURAL PROVISIONS

Part 30 – Design for Dead and Other Loads

30.1 (1) The design of every building shall comply with the relevant provisions of Australian Standard 1170, "SAA Loading Code" –

(a) Part 1 "Dead and Live Loads", except rule 1.5 thereof; and

(b) Part 2 "Wind Forces", except that

(i) As a minimum requirement, terrain category 2½ with velocity multipliers equal to the average of those given in Table 4 of AS 1170 for categories 2 and 3 shall be used where a terrain roughness normally considered to be in Category 3 may be subject to deterioration in extreme winds and –

(ii) The regional basic design wind velocity shall be determined from the following table

Return Period (yr)	Velocity (m/s)
5	40
25	50
50	55
100	60

(iii) For the purpose of determining internal pressures in accordance with AS 1170 – Part 2, all window openings whether glazed or not shall be regarded as potential dominant openings unless approved protection against debris penetration is provided.

(iv) External doors shall be also considered to be potential dominant openings unless the doors and their fixings are shown to be adequate to resist wind and debris loading simultaneously.

(v) Where doors, windows and claddings are considered not to constitute potential dominant openings, the internal positive pressure co-efficient may be reduced to a minimum of +0.2p.

(vi) Protection of openings will be considered adequate if it can be shown to be capable of resisting a 4 kg mass having 100 x 50 mm impacting cross section striking at any angle at a velocity of 20 m/s without affecting internal design pressures.

30.2 In the case of any proposal to build, a certificate is required to be submitted by a practising Structural Engineer certifying that when constructed in accordance with the Drawings and specification, the entire building will be structurally sound and in conformity with the provisions of this Building Manual and the relevant Australian Standards.

GROUP VI – STRUCTURAL PROVISIONS

Part 31 – Excavation, Earthwork and Retaining Walls

31.1 (1) All excavations and backfilling shall be executed in a safe and workmanlike manner. *Excavations and backfilling: safety.*

(2) All excavations shall be properly guarded and protected to prevent them from being dangerous to life or property. *Guarding of excavations.*

31.2 Water shall be removed or diverted from excavations before concrete or other building materials are deposited therein. *Water removal or diversion.*

31.3 Wherever the soil conditions so require, retaining walls or other approved methods of preventing movement of the soil shall be provided and adequate provision made for drainage. *Retaining walls.*

31.4 (1) Where an excavation extends below the footings of a building on an adjoining allotment of land, the person causing the excavation to be made shall, at his own expense – *Support for neighbouring buildings.* *Preservation.*

(a) preserve and protect such building from damage; and

(b) if necessary underpin and support such building in an approved manner.

(2) The person causing the excavation referred to in sub-clause (1) shall, before excavating below the level of the footings of a building on an adjoining allotment of land, give notice of his intention to do so to the owner of the adjoining allotment of land and shall at the same time furnish to such owner particulars of the work he proposes to do. *Notices and particulars of work.*

(3) This clause shall apply pursuant to the requirements of Part 12.

31.5 Backfilling and related work shall be carried out so that movement to all adjoining and overlying property will be permanently prevented. *Backfilling.*

GROUP VI – STRUCTURAL PROVISIONS

Part 32 – Foundations

32.1 The adequacy of foundations shall be assessed on the basis of – *Foundations: assessment of adequacy.*

(a) well established and relevant local knowledge and experience of foundation conditions in the vicinity of the proposed building; or

(b) tests on the foundation or the materials comprising the foundation.

32.2 *Treatment or excavation.* Foundations shall be treated or excavations taken to the depths necessary to provide adequate support to the loads superimposed by the building.

GROUP VI – STRUCTURAL PROVISIONS

Part 33 – Footings Not on Pilings or Caissons

33.1 *Provision of footings.* Suitable footings shall be provided where necessary to reduce the intensity of the pressure of the buildings on the foundations.

33.2 (1) The sizes and strength of footings shall be determined by calculations prepared by a practising Structural Engineer and either the calculations or certification by the Engineer shall accompany drawings submitted with building applications.

(2) Subject to the requirements of sub-clause 33.2 (1) footing sizes, strength and reinforcing shall be not less than those indicated in Clause 33.3.

33.3 *Footings for Class I buildings application.* (1) In a Class I building footings constructed in accordance with the relevant provisions of this clause shall be deemed to comply with Clause 33.2 except where by reason of –

(a) the nature of the foundation; or

(b) the design of the building; or

(c) any other relevant considerations,

the Commission is of the opinion that such footings would not be adequate in the particular case.

Measurement of height of walls. (2) For the purposes of Table 33.3 (6), the height of a wall shall, unless otherwise stated, be measured from the top of the strip footing to the highest point at which the wall abuts the ceiling of the topmost storey, disregarding any gable, or where a wall is free standing, to the highest point of that wall.

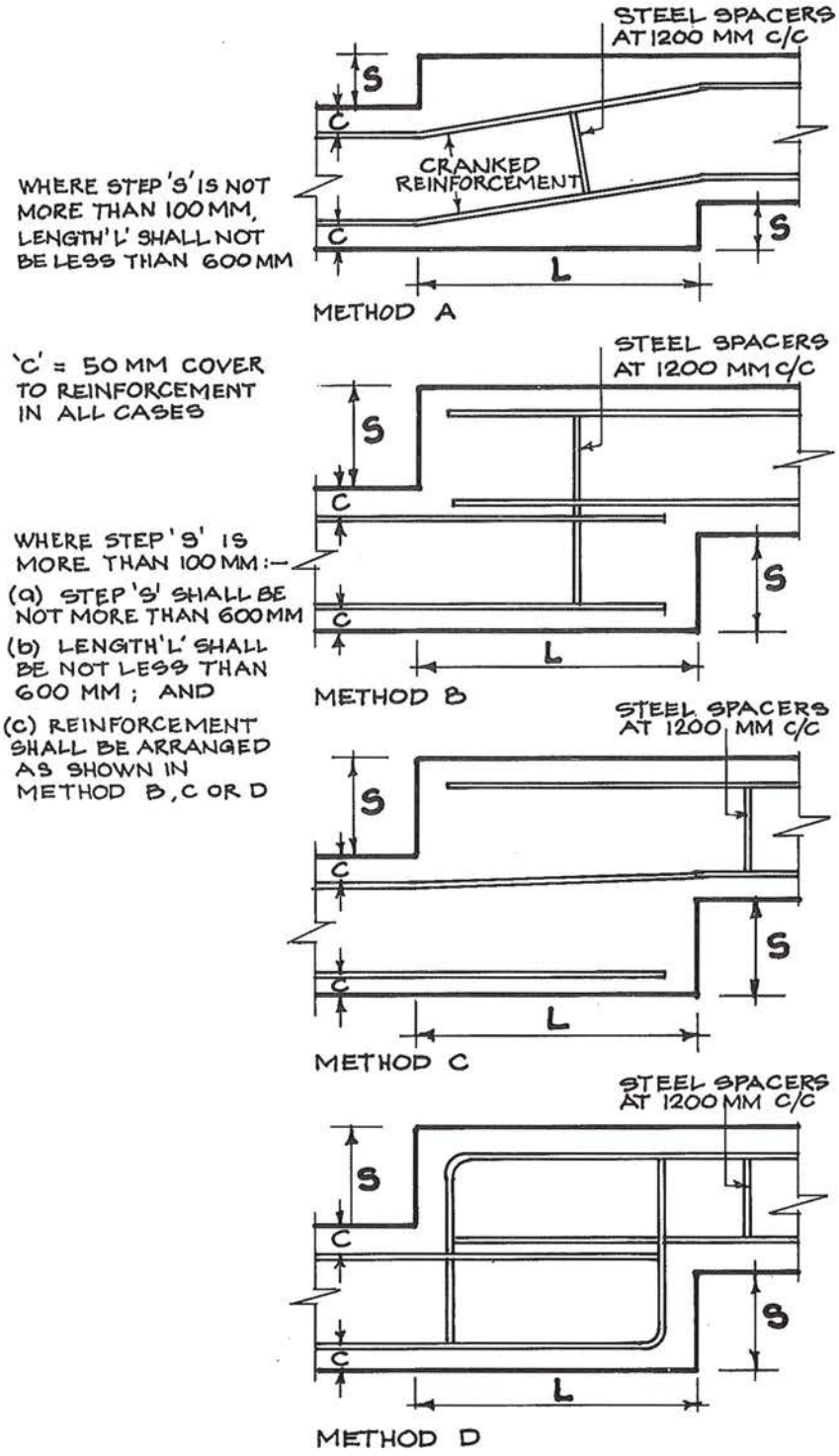
Concrete strength. (3) Concrete used in footings constructed according to this clause shall have a compressive strength at 28 days (F'c) of not less than 15 MPa, determined in accordance with the provisions of Australian Standard 1480, "SAA Code for Concrete in Building".

Steel reinforcement. (4) Steel reinforcement in footings, where required by this clause, shall comply with the following –

(a) Steel bars shall comply with Australian Standard 1302 "Steel Reinforcing Bars for Concrete".

FIGURE 5

Regulation 33.3 (5) (b) and (c)



33.3 (4) *(Cont)*

(b) Steel reinforcing fabric shall be either:

(i) No. F818 fabric complying with Australian Standard 1304 "Hard-drawn Steel Wire Reinforcing Fabric for Concrete" or

(ii) other reinforcing fabric complying with the provisions of Australian Standard 1304 "Hard-drawn Steel Wire Reinforcing Fabric for Concrete" applicable to F818 fabric except those relating to cross wires.

(c) Reinforcement in footings shall:

(i) be equally distributed in two layers, one near the top and one near the bottom of the footing;

(ii) have a concrete cover of not less than 50 mm at any part;

(iii) be laid continuously in the footings, each layer being lapped –

(A) at intersections, for its full width;

(B) at splices, for not less than 450 mm;

(C) at steppings as shown at Figure 5; and

(iv) be securely tied to 6 mm diameter steel spacers positioned at not more than 1200 mm centres.

Strip footings.

(5) Strip footings shall be constructed of reinforced concrete and –

(a) shall have a width and depth not less than as shown in Table 33.3 (6);

(b) if stepping is necessary, shall comply with the requirements of Figure (5) and shall have level bottoms between steppings; and

(c) shall be reinforced as necessary and not less than as shown in Table 33.3 (5) and Figure 5.

Table 33.3 (5)

REINFORCEMENT FOR STRIP FOOTINGS

Width of Strip Footing (mm)	Minimum Number of Main Wires per Layer using F818 Fabric	Minimum Number of 10 mm diameter bars per layer	Minimum Number of 12 mm diameter bars per layer
230	2	2	2
300	3	3	2
380	3	4	2
450	4	5	3

33.3 (5) *(Cont)*

(d) the additional width of footings to the width of the wall it supports, shall extend equally on each side of such wall, except where the footing adjoins a boundary or other wall. *Footings to extend equally.*

(e) where a footing is eccentrically positioned under the wall it supports as paragraph (d), the width and depth of the footing shall be designed to provide against the overturning of the wall. *Eccentrically positioned footing.*

(6) Brick or Concrete block freestanding piers or columns shall have concrete footings – *Footings for freestanding piers and columns.*

(a) not less than 300 mm thick; and

(b) projecting not less than 100 mm beyond each face of the pier or column, or one half of the maximum width of the pier or column, which ever is the greater.

Table 33.3 (6)

CROSS-SECTIONAL DIMENSIONS OF REINFORCED CONCRETE STRIP FOOTINGS

Construction of wall	Nominal thickness of wall to be supported not more than (mm)	Size of concrete (width x depth in mm)	
		For stable soil foundations such as sand or gravel	Other foundations not subject to significant movement or loss of stability with climatic changes
Masonry, single storey with wall height (according to sub-clause 2) not exceeding 4200 mm excluding any gable	270	450 x 250	450 x 300
Masonry veneer single storey with wall height (according to sub-clause 2) not exceeding 4200 mm exclusive of any gable	110	300 x 250	300 x 300
Masonry veneer, two storeys with - External wall height (according to sub-clause 2) not exceeding 7200 mm exclusive of any gable	110	380 x 250	380 x 300
Internal wall height not exceeding 7200 mm	110	300 x 250	300 x 300
Timber frame, single storey – For foundation walling up to 1500 mm high, measured from the top of the strip footing	110	230 x 150	230 x 200

33.3 *(Cont)*

(7) Reinforced concrete or steel pipe piers or stumps supporting structures above ground level shall have concrete footings –

Footings for reinforced concrete and steel pipe piers or stumps.

(a) where the distance between the centre of the piers or stumps does not exceed 3 m, a footing of –

(i) not less than 750 mm in depth; and

(ii) 600 mm in both of its horizontal dimensions with a foundation depth of 900 mm; or

(iii) a cylindrical footing of not less than 500 mm in diameter and 900 mm in depth, with a foundation depth of 950 mm.

(b) Where the distance between the centres of the piers or stumps does not exceed 6 m, a footing of –

(i) not less than 750 mm in depth; and

(ii) 750 mm in both its horizontal dimension with a foundation depth of 900 mm; or

(iii) a cylindrical footing of not less than 600 mm in diameter and 1400 mm in depth, with a foundation depth of 1450 mm.

Footings to verandahs covered areas carports.

(8) Steel pipe columns providing support to verandahs, covered areas, carports and the like, shall have –

(a) Where attached to the main building and the floor area exceeds 37 m^2 a footing of –

(i) not less than 600 mm in depth; and

(ii) 600 mm in both its horizontal dimensions with a foundation depth of not less than 650 mm.

(b) Where detached from the main building and the floor area exceeds 37 m^2, a footing of –

(i) not less than 650 mm in depth; and

(ii) 600 mm in both its horizontal dimensions.

(c) Where detached and not exceeding 37 m^2 in floor area, a footing of –

(i) not less than 600 mm in depth; and

(ii) 550 mm in both its horizontal dimensions with a foundation depth of not less than 650 mm.

(d) In each case of paragraphs (a), (b) and (c) a cylindrical footing of –

(i) not less than 750 mm in depth; and

(ii) 600 mm in diameter,

with a foundation depth of not less than 800 mm.

Superimposed loads on piers or stumps.

(9) The superimposed loads on piers or stumps shall be applied concentrically with the axis of each separate isolated pier or stump on to the footing provided.

GROUP VI – STRUCTURAL PROVISIONS

Part 34 – Piling and Caissons

34.1 Piles shall be –

(a) designed and constructed to resist the forces involved in handling and driving and in supporting all loads superimposed on the piles and

(b) of timber, concrete, steel or other approved material or any approved combination thereof.

GROUP VI – STRUCTURAL PROVISIONS

Part 35 – Walls – General Requirements

35.1 (1) Reserved.

(2) This clause shall apply to every building of loadbearing wall construction.

(3) Every building to which this clause applies shall comply with one of the following alternative rules: *Structural design: alternatives.*

(a) The building shall be provided with horizontal continuity at every floor level.

(b) The building shall be so designed and constructed that the walls, together with the floors shall be capable of resisting the shear loads and bending moments due to dead, live and wind loads.

35.2 All supports, fixings and attachments to external walls and to porches, verandahs and balconies including parapets windows and shutters, doors and claddings and the fixings thereof, shall be designed and constructed to resist the wind loads applicable to the wall or portion of the wall to which they are attached or which they support.

35.3 (1) Walls of buildings of timber or veneer-on-timber construction shall be provided with wind bracing to comply with the requirements of Part 30.

(2) Wall cladding, including masonry, may be considered as providing all or part of the bracing provided that the effectiveness of the cladding as bracing is proven by testing and would not be impaired by debris penetration and/or repeated loading as defined in subclause 39.7 (b).

GROUP VI – STRUCTURAL PROVISIONS

Part 36 – Walling of Masonry

36.1 (1) For the purposes of this Part the sum of the standard thicknesses of the inner and outer leaves of a cavity wall shall be deemed to be the standard thickness of the wall.

External wall thicknesses. Cavity walls.

Minimum thickness of external walls.

(2) The external walls of a building, if of unreinforced masonry construction, shall be designed and constructed in accordance with the relevant provisions of this Part and shall be not less than 180 mm in nominal thickness except –

(a) in the case of Class VII or VIII buildings where the Commission may approve the use of external walls having a minimal thickness of less than 180 mm; or

(b) in the case of Class X buildings or of garages, laundries, tool sheds, privy closets and the like forming part of a building used for other purposes.

36.2 (1) Masonry of –

Brickwork masonry.

(a) burnt clay and shale bricks; and

(b) concrete bricks,

shall be designed and erected in accordance with Australian Standard 1640 "SAA Brickwork Code".

Australian Standard 1640 Strength of Bricks

(2) In addition to the requirements of sub-clause (1) the following provisions shall apply:

(a) The compressive strength figures used in the design calculations shall be based on the known compressive strength of the bricks to be used in the walls.

(b) If the known compressive strengths of the bricks exceeds 48.0 MPa the design calculations shall be based on a maximum figure of 48.0 MPa.

(c) Bricks shall comply with the following transverse strength requirements, according to the figures used in the design calculations for the compressive strength of the bricks –

(i) compressive strength not exceeding 24.0 MPa – no brick shall have a transverse strength of less than 1.7 MPa and the average transverse strength of the bricks shall be not less than 2.0 MPa.

(ii) Compressive strength exceeding 24.0 MPa – no brick shall have a transverse strength of less than 1.9 MPa and the average transverse strength of the bricks shall be not less than 2.7 MPa.

(d) Evidence that the bricks meet the relevant requirements of paragraph (c) and that the compressive strength of the bricks is not less than that used in the design calculations, may be required by the Commission.

36.2 *(Cont)* (3) For the purposes of this clause the following provisions of Australian Standard 1640 "SAA Brickwork Code" shall not apply: *Certain provisions of AS 1640 not to apply.*

(a) The definition of "brick" in rule 1.4;

(b) Rule 2.1.2 – Clay Bricks;

(c) Rule 2.1.4 – Concrete Bricks;

(d) Rule 2.3 – Damp-proof Courses, Flashings and Weatherings;

(e) Rule 3.7 – Prevention of Moisture Penetration;

(f) The second paragraph of Rule 5.1 – Supervision; and

(g) Rule 6.9 – Sound Insulation Tests.

36.3 Masonry of sand-lime (calcium silicate) bricks shall be constructed in accordance with the provisions of Clause 36.2 as though it were masonry of burnt clay and shale bricks or of concrete bricks.

36.4 (1) Concrete block masonry shall be designed and erected in accordance with Australian Standard CA 32 "SAA Code for Concrete Block Masonry". *Concrete block masonry. Certain rules do not apply.*

(2) For the purposes of this Clause –

(a) the following provisions of Australian Standard CA 32 "SAA Code for Concrete Block Masonry" shall not apply –

(i) rule 1.4.1 – Approved;

(ii) rule 4.11 – Damp-proof Courses; and

(b) a free standing wall shall mean a wall not subject to any superimposed load other than wind load and having no effective lateral support.

(3) Notwithstanding the provisions of Australian Standard CA 32 "SAA Code for Concrete Masonry" a free standing wall shall be designed and erected to withstand the wind forces as defined in this Manual. *Free standing walls.*

(4) Notwithstanding the requirements of Australian Standard CA32 "SAA Code for Concrete Block Masonry" any Class B or Class C block may be used in a Class X building. *Use of certain classes of blocks.*

36.5 (1) The erection of buildings of masonry construction in which – *Special masonry.*

(a) the walls are less than the minimum thickness prescribed in Clauses 36.1, 36.2, 36.3, 36.4 or

(b) the masonry is not built of –

(i) burnt clay and shale bricks; or

(ii) concrete bricks; or

(iii) sand-lime (calcium silicate) bricks; or

36.5 (1) (b) *(Cont)*

(iv) concrete blocks.

may be permitted if such buildings are constructed in accordance with the requirements of this Clause.

Limitations.

(2) If the masonry described in sub-clause (1) is –

(a) loadbearing – the building shall not contain more than 2 storeys;

(b) non-loadbearing – the masonry shall be fully supported at the level of every floor by –

(i) frame construction; or

(ii) rigid construction effectually functioning as frame construction; or

(iii) brickwork masonry complying with Clause 36.2; or 36.3; or

(iv) concrete block masonry complying with Clause 36.4.

GROUP VI – STRUCTURAL PROVISIONS

Part 37 – Walling not of Masonry, Timber or Veneer-on-Timber

37.1 *Walls of concrete or steelwork.* Walls of concrete or steelwork shall be constructed in accordance with the provisions of Part 40 and any other provisions of this Manual which are applicable.

37.2 *Special walling.* Walls not of masonry, timber, veneer-on-timber concrete or steelwork shall be so designed as to ensure that they are structurally sound.

GROUP VI – STRUCTURAL PROVISIONS

Part 38 – Floors

38.1 *Floors: generally.* The floors of a building shall be so designed and erected as to be capable of carrying the dead and live loads to be imposed on them.

38.2 *Timber floors.* Floors of timber shall be constructed in accordance with the provisions of Part 41 and any other provisions of this Manual which are applicable.

38.3 *Concrete floors.* Floors of concrete shall be constructed in accordance with the provisions of Part 40 and any other provisions of this Manual which are applicable.

38.4 *Steelwork floors.* Floors of steelwork shall be constructed in accordance with the provisions of Part 40 and any other provisions of this Manual which are applicable.

GROUP VI – STRUCTURAL PROVISIONS

Part 39 – Roofs and roof structures

Roofs; general requirements.

39.1 (i) Roofs and roof structures shall, in addition to the requirements set out in this clause, be constructed in accordance with the provisions of Part 44 and 47 and any other provisions of this Manual which are applicable.

Guarding of flat roof.

(ii) Every flat roof which is accessible by means of stairways, ramps or lifts, shall be protected along the whole of the exposed perimeter by a parapet or guardrail at least 865 mm high for buildings of Class I or II with not more than three storeys rise, and at least 1050 mm high for all other buildings, the space between the guardrail and the surface of the roof having no opening wider than 100 mm.

Timber.

39.2 Roofs and roof structures of timber shall be constructed in accordance with the provisions of Part 41 and any other provisions of this Manual which are applicable.

Concrete roofs.

39.3 Roofs and roof structures of concrete shall be constructed in accordance with the provisions of Part 40 and any other provisions of this Manual which are applicable.

Steelwork roofs.

39.4 (1) Roofs and roof structures of steelwork shall be constructed in accordance with the provisions of Part 40 and any other provisions of this Manual which are applicable.

Self-supporting metal roofing.

(2) Roofs of self-supporting metal roofing shall be constructed in accordance with the provisions of Australian Standard CA 42 – Design and Installation of Self-Supporting Metal Roofing without Transverse Laps, and any other provisions or exemptions in this Manual which are applicable.

39.5 All supports, fixings and attachments to roofs including parapets, ridge cappings, gutters, fascias and barge boards and including the supports, fixings and attachments to the roofs of porches and verandahs shall be designed and constructed to resist the winds loads applicable to the roof or portion of the roof to which they are attached or which they support.

39.6 Roof cladding shall not be deemed to act as wind bracing unless conclusive proof is provided of the adequacy of the cladding and its fixing to act as a braced diaphragm under the combined effects of uplift, repeated loadings and diaphragm action.

39.7 Roof sheeting –

(a) Shall be fixed with screws, bolts, or approved fixings.

39.7 *(Cont)*

(b) The reduction of strength by fatigue shall be recognised by the proof testing of sheeting and its fixing to ensure it will not fail upon the application of 10,000 cycles of working load from zero to maximum followed by a static load test of 1.8 times the working load. Other tests giving conclusive proof of sheets and fixing devices being capable of sustaining the required wind and other loads may be acceptable.

39.8 Other forms of roofing material shall be proved to withstand without observable defects equivalent repeated loadings as set out in sub-clause 39.7(b).

GROUP VI – STRUCTURAL PROVISIONS

Part 40 – Structural concrete and steelwork

Plain concrete.

40.1 Plain concrete construction shall be designed and erected in accordance with the relevant requirements of Australian Standard 1480 "SAA Code for Concrete in Buildings".

Reinforced concrete. Australian Standard 1480.

40.2 Reinforced concrete construction shall be designed and erected in accordance with the relevant requirements of Australian Standard 1480 "SAA Code for Concrete in Buildings".

Prestressed concrete. Australian Standard 1481.

40.3 Prestressed concrete construction shall be designed and erected in accordance with the relevant requirements of Australian Standard 1481 SAA Prestressed Concrete Code.

Steel structures Australian Standard 1250.

40.4 Steel structures for which provision is made in Australian Standard 1250 "SAA Steel Structures Code" shall be designed and erected in accordance with that Standard.

40.5 Cold formed steel construction shall be designed and erected in accordance with the relevant requirements of Australian Standard 1538 "SAA Cold Formed Steel Structures Code".

Steel structures not covered by Australian Standard. Approval by the Commission.

40.6 Steel structures for which provision is not made in an Australian Standard shall be designed and erected to approval by the Commission.

GROUP VI – STRUCTURAL PROVISIONS

Part 41 – Timber Construction

Design and erection.

41.1 Timber structures and members shall be designed and erected in accordance with the relevant requirements of Australian Standard 1720 "SAA Timber Engineering Code".

GROUP VI – STRUCTURAL PROVISIONS

Part 42 – Veneer-on-timber Construction

42.1 (1) Timber structures and members forming part of a building of veneer-on-timber construction shall comply with Part 41. *Construction.*

(2) The outer veneer shall comply with Part 36.

GROUP VI – STRUCTURAL PROVISIONS

Part 43 – Other Kinds of Construction

43.1 (1) An application to erect a building using a system of construction for which no specific provision is made in Group VI "Structural Provisions" of this Manual may be approved, if *Construction where specific provisions are non-existent.*

(a) The building will be structurally sound, sufficient and stable for the purpose for which it is used; and

(b) Sub-clause (2) is met.

(2) The building shall be subject to all relevant requirements of this Manual. *Compliance with relevant requirements.*

GROUP VII – HEALTH AMENITY

Part 44 – Drainage of Building and Site

44.1 *Roof drainage.*

Provision of drainage system.

(1) The roof or roofs of every building except Class I, IV and X buildings shall be provided with a suitable drainage system, subject to the circumstances mentioned in sub-clause (3).

Design of drainage system.

(2) The design and construction of every roof drainage system and the position and manner of discharge of every storm-water drain shall be to the satisfaction of the Commission but shall not, in any case –

(a) result in the entry of water into the building; or

(b) unduly affect the stability of the building or any other building on the same site; or

(c) create any unhealthy or dangerous condition on the site; or

(d) discharge into any drain leading to a sewerage system.

Exemption from roof drainage system.

(3) Notwithstanding sub-clause (1), the omission of a system of drainage from the whole or part of a roof may be approved by the Commission where such omission will not result in or create any of the conditions referred to in paragraphs (a), (b), (c) and (d) of sub-clause (2).

44.2 *Building on land subject to dampness.*

Where, the dampness of the site on which a building is proposed to be erected so warrants, it may be required that one or all of the following measures shall be carried out:

(a) the subsoil shall be effectively drained;

(b) the surface of the ground beneath the building shall be regraded or filled and provided with adequate outlets to prevent any accumulation of water beneath the building;

(c) the ground beneath the building shall be covered with an approved damp-resisting material.

44.3 *Drainage of land external to building.*

If paving, excavation, or any other work on the natural surface of the site causes undue interference with the existing drainage of rain-water falling on any part of the site external to the building, whether the existing drainage is natural or otherwise, the provision of a system of drainage to offset any problems arising from such will be required by the Commission before approval to any building work is given.

44.4 *Building on land subject to flooding.*

No building shall be constructed upon any site liable to be flooded or inundated by water, except that where such building is permitted by the Commission one or all of the following measures shall be carried out:

(a) the level of the lowest floor shall not be less than 350 mm above the known maximum flood level;

44.4 *(Cont)*

(b) adequate measures shall be provided to prevent the retention of flood waters and flood debris beneath or adjacent to the building;

(c) the level of all inlets to a sewerage system shall not be less than 300 mm above the known maximum flood level.

(d) the level of the natural ground shall be raised to a level of the surrounding area, where a building is sited in a depression of the site contours.

GROUP VII – HEALTH AND AMENITY

Part 45 – Disposal of Garbage and Other Household Wastes

45.1 (1) The owner or occupier of every building shall provide a receptacle for garbage in pursuance of Part III of the Public Health (Night Soil, Garbage, Cesspits, Wells and Water) Regulations to the approval of the Commission; and

Storage of garbage.

(2) The owner of every building shall provide satisfactory means whereby such receptacles may be removed without having to be conveyed through any front entrance of the building.

Disposal of garbage: means.

45.2 The owner of every building of Class III, V, VI, VII, VIII and IX shall provide means of removal of garbage from every separate occupancy within such building; and

Disposal of garbage from Class III, V, VI, VII, VIII and IX buildings.

(a) the means provided shall be to prevent the garbage from being conveyed through the front entrance of each separate occupancy; and

(b) through any other separate occupancy; and

(c) in the case of arcades, through the arcade street entrance.

45.3 The owner of every building of Class III, V, VI, VII, VIII and IX shall provide –

Garbage areas in Class III, V, VI, VII, VIII and IX buildings.

(a) a space in the open air or in some closed-off closet or space so that garbage shall be free from offence; and

(b) where a closed-off closet or space is provided, the closet or space shall have sufficient cross-ventilation and ventilation direct to the open-air, so as to prevent the garbage causing obnoxious odours; and

(c) have satisfactory means whereby such receptacles may be removed without having to be conveyed through any part of the building, by the provision of an off-street unloading area within the site, to the approval of the Commission.

45.4 *Unsewered sullage.* In unsewered areas, wherever a building is constructed or altered, it shall be provided with a complete and effective system of drainage to carry household sullage and waste water to a point of discharge outside the building, all to the satisfaction and requirements of the Public Health Department and the Commission.

GROUP VII – HEALTH AND AMENITY

Part 46 – Provision of Bathroom Closets, Kitchens and Laundries

46.1 *Interpretative provisions.* For the purposes of this Part –

"closet fixture" means a water closet pan, sanitary pan, cesspit, or other receptacle for human excreta.

"laundry" means a room designed, constructed or adapted primarily for the washing of clothes or other laundering purposes.

46.2 *Certain combined facilities permissible.* In a Class I, II, or IV building, a bathroom or shower room may include clothes washing facilities, or a water closet, or both, if the floor area is increased in accordance with Part 49.

46.3 *Combined laundries and kitchens etc. prohibited.* Facilities for the washing of clothes shall not be installed in a kitchen or in any room for the preparation, cooking or consumption of food.

46.4 *Class I buildings.* *Facilities to be provided.* (1) Every Class I building shall be provided with –

(a) a kitchen or facilities in another room for the preparation and cooking of food;

(b) a bath or shower;

(c) clothes washing facilities, comprising at least one washtub and space in the same room for the installation of a washing machine or wash copper; and

(d) a closet fixture;

(e) clothes drying facilities in accordance with clause 46.5, (5) (a) and (6).

Facilities detached from main building. (2) Where any of the facilities referred to in sub-clause (1) are not included in the main building, they shall be set aside for the exclusive use of the occupants of the Class I building.

46.5 *Class II buildings.* *Facilities for each sole-occupancy unit.* (1) Every sole-occupancy unit of a Class II building shall be provided with –

(a) a kitchen or facilities in another room for the preparation and cooking of food;

(b) a bath or shower; and

(c) a closet pan;

and these facilities shall, except for a closet pan in an unsewered area, be provided within the sole-occupancy unit.

46.5 *(Cont)*

(2) Every sole-occupancy unit in a Class II building shall be provided with its own clothes washing facilities, comprising at least one washtub and space within the same room for the installation of a washing machine or wash copper, and where these facilities are not installed within the flat they shall be installed in a laundry that is set aside for the use of the occupants of the sole-occupancy unit concerned. *Provision of clothes washing facilities; one for each sole-occupancy unit.*

(3) Notwithstanding the requirements of sub-clause (2) the Commission may permit the installation of a laundry for the common use of the occupants of every four or fraction of four sole-occupancy units in the building, and every such laundry shall be provided with at least one washtub and washing machine. *Common laundries; number required.*

(4) For the purposes of sub-clause (3), it shall not be necessary to take into account any sole-occupancy unit that is provided with its own clothes washing facilities in accordance with sub-clause (2) *Common laundries; exclusion from calculations.*

(5) Every Class II building shall be provided with – *Clothes drying facilities; types required.*

(a) clothes lines or clothes hoists erected in approved positions and comprising 7.5 m of line for each sole-occupancy unit in the building; or

(b) one heat-operated drying cabinet or appliance at the rate of one for every four sole-occupancy unit or part thereof in the building.

(6) For the purposes of sub-clause (5), it shall be necessary to take into account any sole-occupancy unit that is provided with a heat-operated drying cabinet or similar appliance for the exclusive use of the occupants of that unit. *Clothes drying facilities; exclusions from calculations.*

(7) In addition to complying with sub-clause (1) –

(a) every Class II building containing more than 10 sole-occupancy units; or

(b) every group of Class II buildings which are erected on the one site and contain in the aggregate, more than 10 sole-occupancy units;

shall be provided with at least one closet fixture installed in a compartment or room that is located at or about ground level and is accessible without entering a sole-occupancy unit, for employees engaged in work on the site.

46.6 (1) Every Class III building shall be provided with at least one – *Class III buildings.*

(a) bath or shower at the rate of one for every eight persons or part thereof; and

46.6 *(Cont) Facilities for residents.*

(b) a closet fixture at the rate of one for every eight persons or part thereof;

for whom bedroom or dormitory accommodation is or will be provided in the building.

Situation of facilities.

(2) It shall not be necessary for the facilities referred to in sub-clause (1) to be situated within the building.

Exclusions from calculations.

(3) For the purposes of sub-clause (1), it shall not be necessary to take into account the number of persons to be accommodated in a bedroom to which is attached –

(a) a bath or shower; or

(b) a water closet pan;

as the case may be, for the exclusive use of the occupants of that bedroom.

46.7 Every Class IV building shall be provided with –

Class IV buildings: facilities to be provided.

(a) a kitchen or facilities in another room for the preparation and cooking of food;

(b) a bath or shower;

(c) clothes washing facilities, comprising at least one washtub and space in the same room for the installation of a washing machine or wash copper;

(d) a clothes line or clothes hoist erected in an approved position or a heat-operated drying cabinet or similar appliance for the exclusive use of the occupants; and

(e) a closet fixture.

46.8a The number of closets to be provided to every Class of building except those provided under this Manual shall comply with the requirements of the public health and sewerage regulations as applicable, and shall be to the approval of the Commission.

46.9 *Provisions for handicapped persons; closet fixtures.*

(1) If in a building of Class V, VI, VII, VIII or IX, ten or more closet fixtures are provided, then at least one of the closet fixtures and its compartment or cubicle shall be constructed, equipped, and provided with access, in accordance with the provisions of Australian Standard CA 52, Part 1 – Design for Access by Handicapped Persons, and where only one closet fixture is provided pursuant to the provisions of this sub-clause, it shall be accessible to both sexes.

Provisions for handicapped persons; suites in hotels, motels and the like.

(2) If in any hotel, motel, boarding house or the like, twenty or more sole-occupancy units are provided then at least one of the sole-occupancy units shall be constructed, equipped, and provided with access, in accordance with the provisions of Australian

46.9 *(Cont)* Standard CA 52, Part 1, Design for Access by Handicapped Persons.

GROUP VII -- HEALTH AND AMENITY

Part 47 – Weatherproofing, Damp-proofing and Flashing

Roofs and walls. Roofs to be waterproof.

47.1 (1) Roofs shall be so constructed as to prevent the penetration of rain or other water to the inner parts of a building.

External walls to be waterproof.

(2) External walls (including openings around windows and doors) shall be so constructed as to prevent the penetration of rain or other water to the inner parts of a building.

47.2 Roofing materials shall be deemed to comply with sub-clause (1) of clause 47.1 providing they comply with and are fixed in accordance with the relevant Australian Standard Code and in a tropical-cyclone area can be proved to withstand the repeated loadings set out in clause 39.7(c) and 39.8.

Pliable roof sarking.

47.3 Pliable roof sarking used under roof or wall coverings shall comply and be fixed in accordance with Australian Standard CA 22 "Pliable Roof Sarking".

Steel supporting masonry over openings.

47.4 Steel members supporting masonry over openings in external walls, and which are exposed to a salt-laden atmosphere, shall be protected against corrosion by –

(a) hot-dip galvanising not less than 127 micro-millimetre thickness properly bonded to the steel; or

(b) encasing in concrete; or

(c) other means not less effective than galvanising as specified in paragraph (1).

Damp-proofing of certain rooms. Walls of certain compartments.

47.5 (1) The floor surfaces of bathrooms, shower rooms, slop sink compartments, laundries, closet compartments and urinal compartments shall be of a material impervious to moisture properly graded and drained, and, except in the case of earth closet compartments, the junctions of the floor with the walls shall be so treated as to prevent the penetration of moisture into the walls.

Walls adjoining baths and showers

(2) The walls –

(a) immediately adjoining or behind a bath; or

(b) of a shower compartment, including the walls about an open shower;

shall be finished to a height of not less than 1900 mm above the

47.5 *(Cont)* floor with cement render, ceramic tiles or other approved impervious finish.

Walls of closets and urinals.

(3) The walls of closet compartments and urinal compartments shall be finished internally to a height of not less than 1800 mm above the floor with smooth cement render, ceramic tiles or other approved impervious finish.

47.6 (1) Damp-proof courses shall be laid in masonry walls and piers in such a manner that moisture from the ground –

(a) shall be prevented from reaching the lowest floor timbers and the walls above the damp-proof course; and

(b) in the case of any suspended floor construction of a material other than timber shall be prevented from reaching the underside of such floor or the supporting beams or girders.

Use of damp-proof courses in external cavity walls.

(2) In an external cavity wall of masonry construction, damp-proof courses shall be laid in the inner and outer leaves.

(3) Notwithstanding anything to the contrary in this Part, where approved termite shields are used on piers, a damp-proof course shall not be required in such piers, except –

(a) where the piers are of masonry and have an approved termite shield, the piers shall also have approved damp-proof courses.

Over-lap of damp-proof courses. Damp-proof courses: Materials

(4) Where, pursuant to sub-clause (1), a damp-proof course is used it shall be overlapped not less than 100 mm at any joints.

47.7 Damp-proof courses used in a building shall be –

(a) uncovered annealed lead having a mass not less than 9.7kg/m^2; or

(b) uncovered copper having a mass not less than 2.8kg/m^2 and having a thickness not less than 3.14 mm; or

(c) felt based bituminous asphalt neither less than 2.54 mm thick nor more than 3.05 mm thick (applicable only to walls not higher than 7.8 mm above the level of the damp-proof course); or

(d) polythene film not less than 2.54 mm thick; or

(e) annealed sheet aluminium not less than 1.01 mm thick, with a bitumen coat and sheeted with polyethylene film; or

(f) bituminous coated metal complying with Australian Interim Standard 326 "Bituminous Damp-proof Courses with Metal Centre"; or

47.7 *(Cont)*

(g) bituminous coated fibre felt complying with Australian Interim Standard 327 "Bituminous Damp-proof Courses with Fibre Felt Bases";

(h) such other materials as may be approved.

47.8 *Damp-proofing of floors on the ground*

(1) Where a concrete slab or paved floor is laid on the ground or on filling, moisture from the ground shall be prevented from reaching the inner surfaces of the floor and adjacent walls by the insertion of one of the following –

(a) damp-proof courses or membranes complying with the provisions of Clause 47.7; or

(b) 19 mm approved bituminous mix; or

(c) approved clear polythene sheeting; or

(d) other approved damp-proofing means.

(2) Exemptions from the requirements of sub-clause (1) may apply where –

(a) in a Class VII, VIII or X building, where in the particular case there is no necessity to prevent moisture from reaching the inner surfaces of the floor and adjacent walls;

(b) a garage, tool shed, privy closet, or the like, forms part of a building used for other purposes;

(c) any building has conditions relating to the subsoil or where the construction of the floor is such that moisture will be prevented from reaching the inner surfaces of the floor or walls without the insertion of damp-proof courses or membranes or the use of other damp-proofing means; and

(d) the base of any stair, lift or like shaft which is satisfactorily drained by gravitational or mechanical means.

GROUP VII – HEALTH AND AMENITY.

Part 48 – Termite and Rodent Prevention.

48.1 *Termite shield.*

(1) This Clause shall apply to all buildings in which the walls or floors are of timber-frame construction.

(2) Termite shields shall, be fitted to the tops of all piers, columns or stumps supporting timber floor framing.

(3) Termite shields shall, be fitted in any wall or other structure of concrete or of masonry supporting timber-frame walls and floor in a storey next above the natural ground or finished ground surface. Any such shields shall be fitted at a level, in or on the supporting wall or other supporting structure concerned that is below the level at which the wall or floor is supported.

48.2 Any building work which, by reason of the evidence available, is considered subject to the hazard of termite (white ant) attack, may be disapproved, by the Commission unless the building work is protected from such attack in accordance with the provisions of –

(a) Clause 48.1; or

(b) Australian Standard CA43 – Code for soil treatment for Protection of Buildings against Subterranean Termites;

(c) Australian Standard CA50 – Code for Physical Barriers used in the Protection of Buildings against Subterranean Termites;

(d) by other approved means.

48.3 In pursuance of Clause 48.1 termite shields shall be of –

(a) galvanised steel of minimum thickness 498 micro-millimetre.

(b) zincanneal steel of minimum thickness 498 micro-millimetre.

(c) sheet copper of minimum thickness 396 micro-millimetre.

(d) stainless steel of minimum thickness 396 micro-millimetre.

(e) aluminium alloy of minimum thickness 442 micro-millimetre and bitumen-coated on each face.

(f) alloys of copper and zinc of minimum thickness 442 micro-millimetre; or

(g) any other material which, is approved as adequate for the purpose, by the Commission.

GROUP VII – HEATH AND AMENITY.

Part 49 – Room Sizes and Heights.

49.1 For the purposes of this Part as defined in Clause 1.3(1) of this Manual

"floor area" includes the area occupied by any cupboards or other built-in furniture, fixtures or fittings.

"habitable room" means a room (other than a bathroom, laundry, water closet, or the like), that is designed, constructed, or adapted for the activities normally associated with domestic living, and for this purpose –

(a) includes a bedroom, living room, lounge room, music room, television room, kitchen, dining room, sewing room, study, playroom, sunroom, and the like; and

(b) excludes in addition to bathrooms, laundries, water closets, and the like, such rooms or spaces as food storage pantries, walk-in wardrobes, corridors, hallways, lobbies, photographic darkrooms, clothes-drying rooms and other spaces

49.1 *(Cont)*

of a specialised nature occupied neither frequently nor for extended periods.

"habitable space" means a space or area bounded by walls, that is designed, constructed or adapted for the activities normally associated with business vocations, and for this purpose –

(a) includes an office, consultant surgery, shop, warehouse-factory, waiting room, interview room and the like; and

(b) excludes those rooms as defined under paragraph (b) of "habitable room".

49.2 (1) The minimum floor areas prescribed by this Clause shall apply to fully-enclosed kitchens, and habitable rooms.

Sizes of habitable rooms in residential buildings.

(2) A habitable room in Class I, II, III, IV building shall have a minimum floor area of 8.5m² and such area shall be increased, when necessary, to comply with Clause (3), (4) and (5).

Basic minimum area.

(3) In a dwelling-house or sole-occupancy unit containing only one habitable room (not counting any fully-enclosed kitchen), such room shall have a minimum floor area of 18.5m².

One-room dwellings or sole-occupancy unit.

(4) In a dwelling-home or sole-occupancy unit containing more than one habitable room (not counting any fully-enclosed kitchen) –

Dwellings and sole-occupancy units containing more than one habitable room.

(a) at least one habitable room shall have a minimum floor area of 14 m² ; and

(b) at least one other habitable room shall have a minimum floor area of 11 m² ;

(c) habitable rooms shall not be less than 2400 mm wide in its least dimension.

(5) Where, in lieu of a fully-enclosed kitchen, an alcove or other space within a habitable room is provided for the preparation and cooking of food, the required minimum floor area of that room shall be increased by 3 m² with a minimum dimension of not less than 1800 mm in any of its widths.

Habitable rooms incorporating cooking facilities.

(6) Fully-enclosed kitchens shall have a minimum floor area of –

(a) 5 m² in a dwelling-house or sole-occupancy unit containing only one habitable room; or

(b) 6 m² in a dwelling-house or sole-occupancy unit containing two habitable rooms; or

(c) 7 m² in a dwelling-house or sole-occupancy unit containing three habitable rooms; and

(d) 7.5 m² in all other cases, or at least 14 m² or one fourth the size of the dining room based on an allocation of 1 m² per diner, whichever is the greater.

49.2 *(Cont)*

(e) fully enclosed kitchens shall not be less than 2100 mm wide in its least dimension.

49.3 *Sizes of bathrooms and shower rooms in residential buildings. Basic minimum areas.*

(1) A bathroom or shower in a Class I, II, III, or IV building shall have a minimum floor area as follows:

(a) Bathroom 2.2 m^2.

(b) Bathroom provided with a bath and a shower that is not above the bath – 2.8 m^2.

(c) Shower room – 1.1 m^2.

(2) It shall not be necessary to increase the area of a bathroom or shower room to accommodate a wash-hand basin, but where a water closet pan is installed, or the bathroom or shower room is designed to accommodate clothes washing facilities the minimum floor areas prescribed by sub-clause (1) shall be increased for each such facility as follows:

(a) Water closet pan – 0.7 m^2.

(b) Washing machine without washtub (where this is additional to the provision elsewhere in the clothes washing facilities required by Part 46) – 0.7 m^2.

(c) Washing machine and washtub – 1.1 m^2.

(d) Copper and washtub – 1.1m^2;

(e) Clothes-drying cabinet – 0.5m^2.

49.4 *Sizes of water closets: all buildings.*

A water closet in any class of building shall have a minimum floor area of 1.4 m^2 and a minimum width of 810 mm between any opposing walls, or part of a wall.

49.5 *Height of habitable rooms. Minimum height. Class I, II, IV or V buildings. Reduced heights permissible.*

(1) In a Class I, II, III, IV or V building, every habitable room or space, shall be for at least two-thirds of the area of the floor not less than 2400 mm in height and shall not in any part be less than 2250 mm in height, except as permitted pursuant to sub-clause (2).

(2) Where any wall of a habitable room is not perpendicular to the floor, the minimum height of 2250 mm referred to in sub-clause (1) shall not apply to that part of the room adjacent to such wall if –

(a) the angle formed by the floor and a line drawn from the junction of the floor and the wall to a point on the wall 2500 mm above the floor level is not less than 70 degrees; and

(b) satisfactorily there will be no undue interference with the use of the room for habitable purposes.

49.5 *(Cont)* (3) Where, pursuant to subclause (2), any part of a habitable room is less than 2250 mm in height, such part shall not be counted as floor area in calculating, for the purposes of sub-clause (1), the proportion of the area of the floor that is less than 2400 mm in height.

Exclusion of parts of habitable rooms from floor area.

49.6 (1) In a Class I, II, III, or IV building every –

(a) bathroom;

(b) shower room;

(c) water closet; and

(d) laundry,

shall be for at least two-thirds of the area of the floor not less than 2 100 mm in height and shall not in any part be less than 1800 mm in height, except as permitted pursuant to sub-clause (2).

Height of bathrooms, etc. Minimum height.

(2) Where any wall of a –

(a) bathroom;

(b) shower room;

(c) water closet; or

(d) laundry;

is not perpendicular to the floor, the minimum height of 1800 mm referred to in sub-clause (1) shall not apply to that part of the room adjacent to each wall if –

(a) the angle formed by the floor and a line drawn from the junction of the floor and the wall to a point on the wall 1800 mm above the floor level is not less than 70 degrees; and

(b) satisfactorily there will be no undue interference with the use of the room for habitable purposes.

Reduced height permissible.

(3) Where pursuant to sub-clause (2) any part of a –

(a) bathroom;

(b) shower room;

(c) water closet; or

(d) laundry,

is less than 1800 mm in height, such part shall not be counted as floor area in calculating, for the purposes of sub-clause (1) the proportion of the area of the floor that is less than 2 100 mm in height.

Exclusion of parts of bathrooms etc., from floor area.

49.7 (1) In a Class VI building, every habitable space shall be not less than 3000 mm in height for at least two-thirds of the floor area and shall not in any part be less than 2700 mm in height except as permitted pursuant to sub-clause (2).

Height of habitable spaces: Class VI buildings.

49.7 (Cont) *Reduced height permissible in Class VI building.*

(2) Where any habitable space does not exceed 42 m² in floor area the height required for two-thirds of the floor area may be reduced to 2700 mm and shall not in any part be less than 2400 mm in height.

49.8 *Height of habitable spaces: Class VII or VIII building.*

In a Class VII or VIII building, every habitable space shall be not less than 2700 mm in height for at least two-thirds of the floor area and shall not in any part be less than 2400 mm in height.

49.9 *Height of habitable spaces: Class IX buildings.*

In a Class IX building, every habitable space shall be not less than 3000 mm in height for at least two-thirds of the floor area and shall not in any part be less than 2700 mm in height.

49.10 *Reduced height permissible. Class VI, VII, VIII or IX buildings.*

(1) In a Class VI, VII, VIII or IX building rooms and spaces not otherwise required to have a minimum height, shall have a height of not less than 2100 mm in any part, such rooms and spaces are –

(2) bathrooms, ablution rooms, water closets and the like, and corridors, hallways, lobbies, clothes-drying rooms and other rooms and spaces of a specialised nature, occupied neither frequently nor for an extended period.

GROUP VII – HEALTH AND AMENITY.

Part 50 – Light and Ventilation

Division 1 – Lighting

50.1 *Interpretative provisions.*

For the purposes of this Part –

"window" –

(a) includes roof lights, glass panels, glass bricks, glass louvres, glazed sashes, glazed doors, or other devices capable of transmitting natural light directly from the exterior of a building to the room concerned; but

(b) does not include doors or other devices not capable of transmitting natural light from the exterior of a building to the room concerned when in the closed position.

50.2 *Provision of natural light.*

Application of clause.

(1) Natural lighting shall be provided, in the following buildings, to the rooms indicated:

(a) Class I, II and IV buildings – all habitable rooms;

(b) Class III buildings – all bedrooms and dormitories;

(c) Class IX buildings – all bedrooms, dormitories, wards and other rooms used for sleeping purposes.

Methods and required extent of natural lighting.

(2) Natural lighting required by sub-clause (1) shall be provided by means of windows having an aggregate light transmitting area of not less than one-tenth of the floor area of the room concerned.

50.2 (Cont) (3) The light transmitting areas of windows shall be measured exclusive of framing members, glazing bars and other obstructions.

Measurement of areas of windows.

50.3 (1) The required windows of a room shall face –

(a) a court or space open to the sky; or

(b) an open verandah, open car port or the like.

Situation of windows. Situation of windows. Generally windows in Class I.

(2) In a Class I building a required window facing the boundary of the site shall be separated from that boundary by a horizontal distance of not less than 1.5 m.

(3) In a Class II, III, IV or IX building a required window facing an adjoining allotment of land, or a wall of the same building or another building on the site shall be separated from that boundary or wall by a horizontal distance of not less than –

(a) 1.5 m;

(b) one-fourth of the height of the wall (measured from the sill of the lowest window) in which the window is located,

whichever is the greater.

Windows in Class II, III, IV or IX buildings.

(4) Required windows in any Class of building shall –

(i) where they face each other in a direct line; or

(ii) are within an angle of 60° from the perimeter of the opening in which the window is located,

be separated by a distance of not less than 6 m.

Minimum distance between required windows.

50.4 Where in any room not mentioned in sub-clause (1) of clause 50.2 natural lighting by means of windows is not provided to a standard equivalent to that required by clause 50.2 for rooms mentioned therein, a system of artificial lighting shall be provided to the rooms indicated in the following buildings:

(a) Class I and IV buildings – sanitary compartments, bathrooms, shower rooms, airlocks and laundries.

(b) Class II buildings – sanitary compartments, bathrooms, shower rooms, airlocks, laundries, common stairways and other spaces designed for the common use of the occupants of the building.

(c) Class III, V, VI, VII, VIII and IX buildings – all rooms intended to be occupied by any person for any purpose and all corridors, lobbies, internal stairways and other spaces intended for internal movement or egress.

Artificial lighting to be provided in certain rooms and spaces.

50.5 Required stairways and ramps shall be provided with artificial lighting by means of separate electrical wiring circuits from the main switchboard for the exclusive use of each stairway or ramp.

Artificial lighting of stairways.

50.6 *Natural lighting from adjoining rooms. Conditions.*

(1) Notwithstanding the requirements of clause 50.2 a room in a Class I, II or IV building or in a sole-occupancy unit of a Class III building may be lighted by way of a glazed area or other opening facing directly into an adjoining room (including an enclosed verandah) subject to the following conditions:

(a) such glazed area or other clear opening shall be not less in area than one-tenth of the floor area of the room concerned;

(b) the adjoining room shall be provided with windows having an aggregate light transmitting area of not less than one-tenth of the combined floor areas of the rooms concerned;

(c) in the case of a Class II, III or IV building, the adjoining rooms shall be within the same sole-occupancy unit.

Reduction in size of glazed areas.

(2) The areas specified in paragraphs (a) and (b) of clause (1) may be reduced by the area of each window in the first-mentioned room transmitting natural light directly to that room.

Division 2 – Ventilation

50.7 *Provision of ventilation.*

Every habitable room, office, shop, factory, workroom or workshop, sanitary compartment, bathroom, shower room, laundry, and any other room constructed to be occupied by any person for any purpose, shall be provided with either –

(a) natural ventilation complying with clause 50.8; or

(b) a mechanical ventilation or air-conditioning system complying with Part 55.

50.8 *Natural ventilation. Methods and required extent of natural ventilation.*

(1) Natural ventilation required by clause 50.7 shall be provided by means of permanent openings or windows, doors or other devices which are capable of being opened, having an aggregate opening or openable size of not less than one-twentieth of the floor area of the room they are required to ventilate.

Meaning of openable size.

(a) In this Clause "opening" or "openable size" means the nett area available for the passage of air, clear of the openable device when opened to its usual maximum extent, or the nett area of the opening measured in the plane of the opening, window, door or other device, whichever is the lesser.

Situation of natural ventilation devices.

(2) Unless otherwise provided in this Manual required natural ventilation devices shall open to –

(a) a court, vent shaft or space open to the sky; or

(b) an open verandah, open car port or the like.

Construction of vent shafts.

(3) A vent shaft or a fully enclosed court serving as the source of required natural ventilation to an abutting room shall comply with the following requirements:

50.8 *(Cont)*

(a) the top shall be open to the sky;

(b) if it has a cross-sectional area of less than 18 m^2 it shall be provided with permanent ventilation openings comprising one or more horizontal air intakes or passages which –

(i) communicate directly with a public space or open space leading to a public place;

(ii) are situated at or below the level of the lowest required natural ventilation device serviced by such vent shaft or fully enclosed court;

(iii) have an aggregate cross-sectional area of not less than 0.5 m^2 or 5 per cent of the horizontal cross-sectional area of the shaft, whichever is the greater; and

(iv) are not less than 0.1 m^2 in cross-sectional area in any one such air intake or passage.

(c) it shall have a minimum internal horizontal –

(i) dimension of 1200 mm; and

(ii) cross-sectional area of 1.5 m^2.

Natural ventilation of certain rooms in Class I, II, III or IV buildings.

(4) Notwithstanding the requirements of sub-clause (1) a room in a Class I, II or IV building or in a sole-occupancy unit of a Class III building may be ventilated by way of a clear opening or a window, door or other device capable of being opened, which faces directly into an adjoining room (including an enclosed verandah) subject to the following conditions:

(a) the clear opening, window, door or other device shall have an openable size of not less than one-twentieth of the floor area of the room concerned;

(b) the adjoining room shall be provided with a clear opening or a window, door or other device having an openable size of not less than one-twentieth of the combined floor areas of the rooms concerned;

(c) in the case of a Class II, III or IV building the adjoining rooms shall be within the same sole-occupancy unit.

Reduction in size of ventilating areas.

(5) The openable sizes specified in paragraphs (a) and (b) of sub-clause (4) may be reduced by the openable size of each clear opening, window, door or other device capable of being opened in the first mentioned room which opens directly to the exterior of the building.

Ventilation of partitioned spaces and rooms in certain buildings.

(6a) Notwithstanding the requirements of sub-clause (1), a partitioned space or room in a Class V, VI, VII, VIII or IX building may be ventilated by way of a clear opening or an openable device (excluding a door) which faces into another adjoining room that is ventilated in accordance with sub-clause (1) and (2) or mechanically ventilated or air-conditioned in accordance with Part 55 subject to the following conditions:

50.8 *(Cont)*

(a) the opening or openable device shall have an openable size of not less than one-tenth of the floor area of the partitioned space or room;

(b) in measuring the openable size of the opening or openable device for the purposes of this sub-clause, any portion thereof that is more than 3600 mm above the level of the floor shall be excluded from the calculations.

Restriction on position of rooms containing water closets and urinals.

(7) A room containing a water closet or urinal shall not open directly into a kitchen and, except in a Class I or IV building or in a sole-occupancy unit of a Class II or III building, shall not open directly into –

(a) a room for storage or the consumption of food; or

(b) a dormitory or bedroom for a number of unrelated persons.

Airlocks.

(8) Where, pursuant to clause (7), a room containing a water closet is prohibited from opening directly to a kitchen, room for storage or the consumption of food or a dormitory or bedroom for a number of unrelated persons access shall be by way of an airlock, hallway or other room which –

(a) in the case of Class I and IV buildings and sole-occupancy units in Class II and III buildings has a floor area of not less than 1.1 m^2 ; and

(b) in the case of Class V, VI, VII and VIII buildings –

(i) has a floor area of not less than 1.1 m^2 ; and

(ii) is fitted with self-closing doors at all access doorways;

(c) is ventilated where required, to the approval of the Commission.

50.9 *Arcade ventilation.*

Where any shop, room or space opens to an arcade, there may, subject to such conditions as are considered desirable, be exemption for such shop, room or space from the requirements of this Division, as considered appropriate by the Commission.

50.10 *Sub-floor ventilation requirements.*

(1) Where the lowest floor of a building is of timber frame construction a space shall be provided between the underside of every joist and bearer and the ground surface, and that space shall be –

(a) ventilated and cross-ventilated by means of evenly distributed openings in the external walls having an unobstructed area of not less than 4200 mm^2/m of external walls; and

(b) not less than 200 mm in depth in every part.

Reduction or increase in requirements.

(2) Notwithstanding the requirements of sub-clause (1) consideration may be given by the Commission to –

(a) an approval of the reduction of the area of the openings or

50.10 *(Cont)*

the depth of space referred to in sub-clause (1), or both, if it is necessary in the particular case that by reason of –

(i) the nature of the site; or

(ii) the design of the building; or

(iii) the provision of an impervious cover over the ground surface beneath the buildings; or

(iv) a combination of the factors referred to in sub-paragraphs (i), (ii) and (iii),

undue deterioration of the floor timbers will not occur as a result of such reduction; or

(b) require an increase in the area of such openings where in the particular case the –

(i) nature of the site; or

(ii) design of the building;

such an increase is necessary to prevent undue deterioration of the floor timbers.

Position of sub-floor ventilation openings in cavity walls.

(3) In cavity wall construction the openings specified in paragraph (a) of sub-clause (1) shall be provided in the outer section of the wall, and openings of the same area shall be provided in the inner sections in positions as near as practical to those in the outer section.

Openings in internal walls in sub-floor area.

(4) Internal walls constructed in the underfloor space referred to in sub-clause (1) shall be provided with openings having an aggregate area of not less than 4200 mm^2/m run of wall concerned, and such openings shall be evenly distributed.

Public garages and parking stations.

50.11 Every storey of a public garage or parking station shall be provided with either –

(a) a mechanical ventilation or air-conditioning system complying with Part 55; or

(b) a system of permanent natural ventilation to approval.

Venting of stages: Application.

(1) This clause applies to every stage in a building, which stage –

(a) is used for the viewing by an audience of 500 or more persons reckoned by:

(i) the number of fixed seats, if the auditorium is fitted throughout with fixed seats; or

(ii) the population reckoned according to sub-clauses (2), (3) and (4) of clause 24.28 if the auditorium has movable seating; or

(b) has a floor area, including the area of any rigging loft, in excess of 300 m^2.

50.11 (2) *(Cont)* Where by reason of one or more of –

Modifications to be determined and approved.

(a) the likely use of the building or of the stage;

(b) the fire-fighting and exit facilities installed;

(c) the likely maximum number in the audience;

(d) the floor area of the stage; or

(e) any other sound cause; and

evidence is provided that the hazard arising from fire to the occupants, or to neighbouring property, is not more than provided for elsewhere in this Manual, then modifications of the provisions of this Clause may be determined and approved, by the Commission.

Nature of venting. (3) Every stage prescribed, by sub-clause (1) hereof shall be vented from the highest portion of the space above the stage, in the event of fire on the stage, by emergency vents to expel the hot products of combustion and smoke by either –

(a) natural venting as prescribed in sub-clause (4) hereof; or

(b) mechanical exhaust venting as prescribed in sub-clause (5) hereof.

Requirements for natural venting. (4) The natural venting required in paragraph (a) of sub-clause (3) hereof, shall comply with the following conditions –

(i) automatic, and operating at a temperature 5°C above that at which any installed fire-alarm system or installed sprinkler system, is set to operate; and

(ii) manually, operable from both the location normally to be used by the stage manager and from near an exit from the stage, remote therefrom;

(b) the total openable area of the vents shall be not less than one-twentieth of the total floor area of the stage and the rigging loft;

(c) no single vent shall have an openable area of less than one-fifth of the total openable area required by condition (b) hereof; and

(d) the vents shall be of non-combustible construction throughout.

Requirements for mechanical venting. (5) The mechanical exhaust venting required in paragraph (b) of sub-clause (3) hereof, shall comply with the following conditions –

(a) the provisions of clause 55.7 shall apply so far as they are compatible with the requirements of this clause;

(b) the mechanical exhaust system shall be provided with sufficient capacity to exhaust an amount of air at least equal to the sum of the following:

50.11 *(Cont)*

(i) L/s m^2 of the performing area of the stage; and

(ii) L/s m^2 of the remainder of the area of the stage and of the rigging loft;

(c) the ducts shall not serve any other purpose and shall comply with the requirements of Clauses 11 and 12 of Specification 7 prescribed in 55.7;

(d) No part of the ducts shall be closer than 300 mm to timber or other combustible material;

(e) the electric motors and fans of the mechanical exhaust system shall be constructed to operate at a temperature of not less than 250°C for a period of not less than two hours, but approved motors having other characteristics, if they are protected from the effects of fire and temperature, may be used.

(f) the electrical service for the mechanical exhaust system shall be connected to the supply side of the main disconnection switch for the building and shall:

(i) consist of copper sheathed mineral-insulated cable; or

(ii) be protected on all sides by material having a fire resistance value of not less than that provided by 13 mm gypsum plaster or 25 mm cement render on metal lath; and

(g) the mechanical exhaust system shall be operable:

(i) manually; and

(ii) automatically at a temperature 5°C above that at which any installed fire-alarm system or installed sprinkler system is set to operate.

GROUP VIII – HEALTH AND AMENITY

Part 51 – Special Health and Amenity Requirements for Particular Rooms.

Reserved

GROUP VIII – HEALTH AND AMENITY

Part 52 – Noise Transmission.

Application of Part. Certain Class II buildings of 1 or 2 storeys.

52.1 (1) This Part applies to a Class II and III building, having a rise of three or more storeys.

(2) A Class II and III building shall comply with any or all of the provisions of this Part.

52.2 Reserved.

52.3 (1) *Between a bathroom, laundry, or kitchen and a habitable room in an adjoining flat.* A wall dividing separate flats or sole-occupancy units, or a wall dividing a flat from a plant room, lift shaft, stairway, public corridor, hallway or the like shall have a Sound Transmission Class of not less than 45.

(2) A wall dividing a bathroom laundry or kitchen in one flat or sole-occupancy unit from a habitable room (other than a kitchen) in an adjoining flat or unit shall –

(a) have a Sound Transmission Class of not less than 50; and

(b) incorporate the following construction in order to reduce the transmission of impact sound:

(i) the wall shall be constructed in two or more separate leaves without rigid mechanical connection other than at its periphery.

(ii) any connection between the leaves, other than at the periphery, shall be by means of devices incorporating resilient plugs or mountings except that in the case of a masonry wall wire ties according to Australian Interim Specification 324 "Metal Wall Ties for Brick-Work" shall be permitted.

(3) *Certain construction deemed to satisfy.* A wall constructed according to one of the following rules shall be deemed to satisfy the requirements of clause (2) –

(a) two leaves of 90 mm brick masonry complying with Part 36; and having:

(i) all joints filled solid with mortar; and

(ii) an air space of not less than 40 mm between the leaves.

(b) 190 mm thick concrete block masonry complying with Part 36 and having:

(i) each face of the blocks fitted with 50 mm x 50 mm timber battens, spaced at not more than 610 mm centres, screw-fixed into resilient plugs with rubber inserts;

(ii) the space between the battens completely filled with mineral or glass wool blanket or batts not less than 50 mm thick; and

(iii) the outer face of the studs finished with plasterboard not less than 9.5 mm thick or other material having a mass per unit area of not less than 7.3 kg/m^2 .

52.3 *(Cont)*

(c) 110 mm brick masonry complying with Part 36; and having:

(i) each face rendered 12 mm thick;

(ii) 50 mm x 12 mm thick timber battens at not more than 610 mm centres fixed to each face but not recessed into the render;

(iii) one layer of 12.7 mm thick softboard nailed to the battens; and

(iv) 6.3 mm thick medium density hardboard adhesive fixed to the softboard.

52.4 A duct shall not pass through a wall dividing a habitable room, other than a kitchen, in one flat from a bathroom laundry or kitchen in an adjoining flat.

Ducts not to penetrate certain walls.

52.5 (1) This clause shall not apply to those sections of a soil or waste pipe serving only one flat and located wholly within that flat.

Soil and waste pipes to be separated.

(2) soil and waste pipes, including those that pass through a floor, shall be separated from the rooms of any flat immediately adjacent thereto by construction having the following Sound Transmission Class:

Application of Clause. Type of separation required.

Type of room immediately adjacent	Sound Transmission Class of not less than:
Habitable rooms other than kitchens	45
Kitchens	30
All other rooms	30

(3) Where a soil or waste pipe is required by sub-clause (2) to be separated from the rooms of any flat immediately adjacent thereto by construction as specified in that sub-clause –

Access door or panel.

(a) no access door or panel shall be provided in any part of that construction that is immediately adjacent to a habitable room (other than a kitchen); and

(b) an access door or panel in any other part of that construction shall be firmly fixed so as to overlap the frame or rebate of a frame by not less than 10 mm and shall be fitted with a sealing gasket along all edges and constructed of:

(i) wood, particle board or blockboard having a thickness of not less than 38 mm; or

(ii) dense asbestos – cement sheet having a thickness of not less than 9.5 mm; or

(iii) approved material having a mass per unit area of not less than 24.4 kg/m^2.

52.6 A floor dividing separate flats shall have a Sound Transmission Class of not less than 45.

Sound insulation of floors between flats.

52.7 *Isolation of pumps.* A flexible coupling shall be used at the point of connection between the service pipes in a building and any circulating or other pump.

52.8 *Sound Transmission Class – Interpretation.* A form of construction required by this Part to have a certain "Sound Transmission Class", shall, subject to clause 52.10, be –

(a) one that has achieved not less than the required value when tested by one of the laboratories listed in sub-paragraphs (i) to (iv) of paragraph (b) of sub-clause 52.10(1); or

(b) one that is deemed, pursuant to clause 52.3 or clause 52.9 to have not less than the required value.

52.9 *Construction deemed to satisfy: General requirements.* (1) For the purposes of this Part the forms of construction that –

(a) are listed in Table 52.9; and

(b) comply with the requirements of sub-clause (2), (3), (4), (5), and (6) as applicable

shall be deemed to have the Sound Transmission Class stated in the second column of that Table.

Masonry. (2) Masonry units shall be laid with all joints, including those between the masonry and any adjoining construction, filled solid.

Concrete slabs. (3) Joints between concrete slabs and any adjoining construction shall be filled solid.

Fire-grade Plaster-board. (4) Fire-grade plaster-board shall be a special grade as manufactured for use in fire-resisting construction, and fixed according to the following rules –

(a) where one layer shall be fixed to studs it shall be screw-fixed to the studs with joints staggered on opposite faces;

(b) where two layers are required the first layer shall be fixed according to paragraph (a) and the second layer shall be fixed so that the joints do not coincide with those of the first layer, and each sheet shall be fixed to the first layer with nails, screws or adhesive, or a combination of those methods as appropriate;

(c) Joints between sheets shall be taped and filled solid.

(d) Joints between sheets and any adjoining construction shall be filled solid.

Standard plaster-board. (5) Plaster-board, being plaster-board other than fire-grade quality, shall be fixed in a similar way to that described for fire-grade plaster-board in sub-clause (4).

Steel studs and perimeter members (6) Where the construction involves the use of steel studs –

(a) the studs shall be of a thickness not more than 0.99 mm thickness and not less than 0.63 mm thickness and be not less than 63.5 mm in depth;

52.9 *(Cont)*

(b) the studs shall be fixed to top and bottom plates of sufficient depth to permit secure fixing of the plaster-board; and

(c) all steel members at the perimeter of the wall shall be securely fixed to the adjoining structure and shall be bedded thereto in resilient compound or caulked so that there are no voids.

Acceptance of construction without Test

52.10 (1) Where it is proposed to use a form of construction that does not comply with Clause 52.3, or Clause 52.9 as the case requires, approval may be given by the Commission to that form of construction upon production of a report in accordance with sub-clause (2) from an acoustic laboratory with facilities for and engaged in the making of airborne sound transmission tests being:

(a) Commonwealth Experimental Building Station, Department of Housing and Construction

(b) Division of Building Research, Commonwealth Scientific and Industrial Research Organization; or

(c) a laboratory registered in the appropriate field with the National Association of Testing Authorities Australia.

Report to include.

Certain details.

(2) The report referred to in sub-clause (1) shall state –

(a) that in the opinion of the authority concerned the proposed construction would be capable of achieving the required Sound Transmission Class, and if applicable, would be not less resistent to the transmission of impact sound than the construction described in sub-clause (3) of clause 52.3;

(b) details of materials, construction, and methods of fixing which shall be complied with in order to achieve the required performance.

TABLE 52.9

Sound Transmission Class deemed to apply to certain construction

Sound Transmission Class not less than.

Construction	
Walls –	
Solid clay or shale bricks, 110 mm thick, rendered 12.5 mm thick on both sides.	
Solid clay or shale bricks, having a total thickness of not less than 230 mm.	
Grey, common concrete bricks, 110 mm thick and conforming to Australian Standard Interim 306 and or as 1346 and having a total mass per unit area of not less than 195 kg/m^2.	
Dense concrete masonry blocks, 190 mm thick and conforming to Australian Standard Interim 306 and or as 1346 and having a total mass per unit area of not less than 195 kg/m^2.	

52.10 *(Cont)* Dense concrete masonry blocks, 190 mm thick having a total mass per unit area of 215 kg/m².

Dense concrete masonry blocks, 140 mm thick having a wall thickness of not less than 44 mm and having –

(a) 50 mm x 50 mm timber battens spaced at not more than 610 mm centres screw-fixed on one face of the blocks into resilient plugs with rubber inserts;

(b) the face of the battens clad with 12.7 mm thick standard plaster-board; and

(c) a total mass per unit area of not less than 220 kg/m².

125 mm thick in situ concrete slab.

100 mm thick precast concrete slab without joints.

Steel studs having two layers of 15.8 mm thick fire-grade plaster-board fixed to each face.

Steel studs having –

(a) one layer of 15.8 mm thick fire-grade plaster-board fixed to one face. Before fixing 50 mm thick mineral wool or glass-fibre blanket shall be stapled to the back of each sheet so that the sheet is completely covered; and

(b) two layers of 12.7 mm thick fire-grade plaster-board fixed to the other face.

Steel studs having –

(a) 50 mm thick mineral wool or glass-fibre batts wedged firmly between the studs;

(b) one layer of 15.8 mm fire-grade plaster-board fixed to one face; and

(c) two layers of fire-grade plaster-board fixed to the other face, the inner layer consisting of 15.8 mm thick fire-grade plaster-board and the outer layer consisting of 12.7 mm thick plaster-board.

Floors –

(a) 125 mm thick in situ concrete slab.

(b) 100 mm thick in situ dense concrete slab.

(c) 100 mm thick precast concrete slab without joints.

Timber Floor comprising –

(a) timber joists not less than 175 mm x 50 mm;

(b) tongued and grooved boards not less than 19 mm; thick and secured to 75 mm x 50 mm battens between each joist and laid over joists but not affixed thereto;

(c) 75 mm thick mineral wool cut to fit tightly between joists and laid on 9.5 mm thick plaster-board fixed to underside of joists.

52.10 *(Cont)* Ducts or other Construction Separating Soil and Waste Pipes from Flats –

Masonry not less than 90 mm thick with all joints, including those between the masonry and any adjoining construction, filled solid.

Two layers of 9.5 mm standard plaster-board –

(a) fixed to timber studs not less than 75 mm x 50 mm spaced at not more than 407 mm centres;

(b) with the joints in the two layers of plaster-board staggered; and

(c) with all joints in the plaster-board including those between the plaster-board and any adjoining construction filled solid.

Notes:

GROUP VIII – ANCILLARY PROVISIONS

Part 53 – Special Requirements for Certain Buildings and Components

53.1 Reserved

53.2 (1) Refrigerated and cooling chambers forming part of a building and which are of sufficient size to permit the entry of a person shall be provided with – *Refrigerated and cooling chambers.*

(a) a door which can at all times be opened from inside without a key; and *Safety devices.*

(b) an approved alarm device located outside but controllable only from within the chamber.

(2) The door referred to in paragraph (a) of sub-clause (1) shall be set in an opening having a clear width of not less than 600 m. *Door widths.*

53.3 Strong rooms in buildings shall be provided with – *Strong rooms.*

(a) internal lighting controllable only from within the room;

(b) a pilot light located outside the room but controllable only by the switch for the internal lighting referred to in paragraph (a); and

(c) an approved alarm device located outside but controllable only from within the room.

53.4 (1) For the purposes of this clause any one of the following shall be deemed to be safety glass:– *Safety glass. Certain glasses deemed to be safety glass.*

(a) Wired glass not less than 6.3 mm in thickness.

(b) Laminated glass having an overall thickness of not less than 6.3 mm and comprising two or more layers of glass and one or more plastic interlayers permanently bonded together under heat and pressure; and

(c) Heat-treated (toughened) glass not less than 4.7 mm in thickness and which is permanently marked with the words "safety glass" or "toughened safety glass" or other words which afford a ready means of identifying the safety characteristics of the glass.

(2) Glass used within 1.8 m of the floor in any panel or door screening a shower or bath shall be safety glass. *Shower or screens.*

53.4 *(Cont)*

Use of safety glass in glass doors and panels.

(3) Except as provided in sub-clause (4) safety glass shall be used in –

(a) every glass door; and

(b) every fixed glass panel that is so located in relation to other parts of the building as to be capable of being mistaken for a doorway or unimpeded path of travel.

Exemptions.

(4) Sub-clause (3) shall not apply to glass doors or glass panels which –

(a) are provided with a frame, decoration or other device sufficient to make the glass plainly distinguishable.

53.5 *Fibrous plaster.*

Fibrous plaster shall not be used for the walls and ceilings of a building unless it is –

(a) manufactured in accordance with Australian Standard A44 "Fibrous Plaster Products"; and

(b) fixed in accordance with Australian Standard CA20 "The Erection and Fixing of Fibrous Plaster Products".

53.6 *Shop fronts interpretation.*

(1) For the purposes of this Manual "shop front" means such portion of the structure of a Class VIC building as abuts or faces a public place and is not in the nature of a wall supporting a wall or frame, or portion of a wall or frame above.

Height.

(2) No shop front shall exceed two storeys in height.

Construction.

(3) The construction of every shop front shall comply with the following rules –

(a) No part of any shop front frame shall be fixed:

(i) nearer than 75 mm to the centre line of a reinforced concrete party wall;

(ii) nearer than 100 mm to the centre of a masonry party wall; or

(iii) nearer than 100 mm to the boundary of an abutting site when there is no party wall on that boundary.

(b) The construction immediately surrounding every shop front shall comply with the provisions of Group VI of this Manual;

(c) The openings in every shop front shall be protected as required by the provisions of Part 22 of this Manual.

(d) The external surfaces of stall-boards under shop fronts shall be impervious to moisture.

53.7 (1) For the purposes of this Manual "kiosk" means a stall or apartment enclosed by walls, which the public does not enter, and which is used for the sale of distribution of goods or services. *Kiosk: interpretation.*

(2) No kiosk shall be constructed unless – *Construction.*

(a) it is distant at least 1.5 m from a public place: provided that prior consent is obtained in writing from the Commission, to the construction of a kiosk which is an apartment enclosed by walls, being nearer to a public place; and

(b) it:

(i) is in an arcade, or not being in an arcade, has a minimum height of 2400 mm measured from floor to ceiling or wall plate, as the case may be;

(ii) has no internal dimension less than 1 m;

(iii) has a floor area of at least 1.5 m^2 when occupied by one person or at least 2 m^2 per person when occupied by two or more persons; and

(iv) has ventilation in accordance with the provisions of Part 50 of this Manual.

53.8 No Class X building shall contain a kitchen. *Class X buildings.*

53.9 (1) No building of Class X which is a stable shall be constructed unless –

(a) the stable floor is drained satisfactorily and constructed of concrete or masonry and is impervious to moisture;

(b) every room, other than a store room, constructed over or adjoining the stable is separated from the stable by walls or floor or both, as the case may be, of masonry or concrete which is impervious to moisture; and

(c) a manure pit constructed of impervious material and fitted with covers approved by the Public Health authority is provided adjacent to and in connection with the stable.

(2) No habitable room shall be constructed over or adjoining a stable.

53.10 No cellar or basement room shall be constructed or converted for use for purposes other than storage or the housing of plant, unless – *Cellar or basement rooms.*

(a) it is ventilated with mechanical ventilation complying with the provisions of Part 50 of this Manual.

53.10 *(Cont)*

(b) it is provided with egress facilities complying with the requirements of Part 24 of this Manual; and

(c) all materials used for linings and ceilings of the cellar or basement room have:

(i) an index number for spread of flame not exceeding 0; and

(ii) an index number for smoke developed not exceeding 2, when tested in accordance with the provisions of Australian Standard No. A30 – Fire Tests on Building Materials and Structures.

53.11 *Timber mills and storage of flammable material.*

(1) Wherever a timber mill is constructed, or space for the storage of timber or flammable material is established on a site, the structure may, in the particular case, require compliance with such of the provisions of this Manual as apply –

(a) to a Class VIII building of Type 5 construction; and

(b) to the spread or combating of fire, as is deemed reasonable in the particular circumstances.

Exemptions.

(2) Nothing in this Clause shall apply to the storage of fuel to be used solely for his own domestic purposes, by the occupier of any dwelling or sole-occupancy unit.

53.12 *Dangerous and inflammable materials interpretation.*

(1) For the purposes of this Manual –

(a) "dangerous material" includes any substance liable to sudden explosion, inflammation or ignition, whether so liable inherently, by reason of its mode of containment, or by reason of contact with other materials, and any material which is radio-active or which will emit toxic gases; and

(b) "inflammable matter" means that so defined by Section 5 of the Fire Brigades Ordinance 1956-1963. Such matter is classified as Class I Inflammable Liquid, or Class II Inflammable Liquid, as prescribed in Section 7 of the Inflammable Matter Regulations.

Requirements.

(2) No room intended to be used as a store room for inflammable liquids shall be constructed unless it complies with the provisions of this Clause.

Drawings to be submitted.

(3) The drawings submitted with the application shall show every room intended to be used to store more than 73 litres of inflammable liquid, and the quantity intended to be stored.

Quantities to be stored.

(4) No room in any building of Class I, II, III, IV, V or IX shall be constructed to store more than 73 litres of Class I inflammable liquid or 454 litres of inflammable liquid of Class II.

53.12 (Cont) (5) Wherever in accordance with the provisions of the Inflammable matter regulations 1959 quantities exceeding 73 litres of Class I inflammable liquid, or exceeding 454 litres of inflammable liquid of Class II are to be stored in a room in a building of Class VI, VII or VIII the room shall: *Fire separation and ventilation.*

(i) be fire-separated from every other section of the building in accordance with the provisions of Clause 16.15 (2), as though the room were a room containing mechanical or electrical equipment for the servicing of the building; and

(ii) be ventilated in accordance with the provisions of Part 50, as though it were a room occupied by a person, or as directed by the Commission or by the Chief Fire Officer under section 17 (iv), (v) and (vi) of the Inflammable Matter Regulations.

(b) No such room shall be used for the storage of inflammable liquid unless the building is constructed in accordance with the provisions of this Manual, and to the satisfaction of the Commission and the Chief Fire Officer.

(6) No room shall be constructed, altered or used for the storage of dangerous materials, other than inflammable liquids, unless – *Dangerous materials.*

(a) the room is fire-separated from every other section of the building in accordance with the provisions of Clause 16.15 (2) as though the room were a room containing mechanical or electrical equipment for the servicing of the building; and

(b) the room is ventilated in accordance with the provisions of Part 50, as though it were a room occupied by a person, or as directed by the Chief Fire Officer, under section 17 (iv) (v) and (vi) of the Inflammable Matter Regulations.

53.13 No detached incinerator which exceeds 0.5 m^3 in overall size shall be constructed unless it is distant at least 4 m from every boundary of the site and every other building on the site, and no detached incinerator of any size shall be constructed unless it is distant at least 4 m from every boundary of the site and every other building on that site. *Detached incinerator.*

53.14 (1) A protective balustrade or guard shall be provided along the side of any non-required stairway, open-deck parking areas and to ramps, corridors, hallways, landings, balconies, verandahs, bridges and the like attached or appurtenant to or included in a building, not otherwise prescribed in this Manual, if that side – *Protective balustrades or guards: where required.*

(a) is no bounded by a wall; and

(b) is more than 515 mm (or 5 risers in the case of a stairway) above the finished level of the adjoining floor or ground.

53.14 (Cont) *Balustrades or guards in other places.*

(2) Provision shall be made for a protective balustrade or guard along the side of any part of a building to which persons may ordinarily gain access and which is not subject to sub-clause (1), and along the side of any path of access to a building, if that side –

(a) is not bounded by a wall;

(b) is more than 915 mm above the finished level of the adjoining floor or ground; and

(c) it is considered that the absence of a balustrade or guard would represent an undue hazard to persons having access to that part or path of access.

Height.

(3) A required balustrade or guard shall be not less than 965 mm in height, such height in the case of a stairway being measured above the nosings of stair treads.

Class I.

(4) This clause shall apply equally to a Class I building.

53.15 *Openings for basement rooms and cellars.*

(1) If any area or opening to any part of any building is below the level of any abutting public place, the owner or occupier of the building shall safely and securely guard the area or opening by rails or bars so as to prevent injury to any persons passing along the public space.

Room or storey below ground.

(2) If any room or storey below the ground of any building is below the level of any abutting public space the owner or occupier of the building shall safely and securely guard any doorway or entrance to the room or storey below the ground, so as to prevent injury to any persons passing along the public place.

53.16 *Separation of cinematography rooms.*

Every cinematograph projection room shall be constructed to comply with the following conditions –

(a) it shall be fire-separated from the rest of the building by construction having a fire-resistance rating of two hours;

(b) it shall have all doorways protected by self-closing fire-doors having a fire-resistance rating of two hours, which shall open outwards from the cinematograph room, but not into a path of travel or exit from the storey, nor into a hall, theatre, classroom or the like; and

(c) it shall be ventilated either naturally or in accordance with the provisions of Clause 55.7.

53.17 Cyclone Refuge Shelter

Cyclone refuge shelter.

(a) Buildings of Classes I, II, III and IV may be provided with a refuge shelter capable of withstanding a design wind velocity of 80 M/S. *Amendment 2 11.2.76*

53.17 *(Cont)*

(b) The walls and roof of the refuge shelter shall be designed to resist penetration by debris and doors and other openings shall be effectively protected from direct impingement by debris. Walls, roofs, doors and windows shall be regarded as being able to resist debris penetration if they are capable of fully resisting penetration from impact by an 8 kg 50 mm x 100 m timber plank striking on end at 30 m/s velocity.

(c) The refuge shelter may be a room attached to or separate from the building which may be used for any other purpose, but not a room used primarily for storage and shall be readily accessible at all times. *Amendment 2 11.2.76*

(d) No refuge shelter shall have a floor area of less than 2.2 m^2 and where in buildings of Classes II and III common refuge shelters are provided to serve two or more bedrooms or sole-occupancy units, the total floor area of the refuge shelter(s) shall be not less than 1 m^2 per person able to be accommodated in bedrooms. *Area of refuge shelter.*

(e) The refuge shelter shall be provided with ventilation to approval. *Amendment 2 11.2.76*

GROUP VII – ANCILLARY PROVISIONS

Part 54 – Awnings and Other Attachments

54.1 In this Manual "awning" includes a light metal structure which is cantilevered or otherwise supported from the building. In a tropical-cyclone area all awnings and other attachments to which Part 54 applies shall comply with the provision of Part 30 with respect to buildings and components of buildings in such an area.

54.2 (1) No awning or balcony shall be constructed as part of any building unless – *Awnings and balconies.*

(a) the whole of the exposed perimeter of every balcony is fitted with a guardrail at least 865 mm high for buildings of not more than three storeys of Class I, II or X and at least 1050 mm high for other buildings, the space between the guardrail and the floor of the balcony having no opening wider than 150 mm;

(b) structural calculations for the awning or balcony and handrails, and for their attachment to the building are to be submitted to the Commission for their approval. *General provisions.*

(c) The roof, (if any), of the balcony, or of the awning, and the floor of the balcony, are impervious to water and have an approved system of drainage;

(d) the fire-resistance rating of the floor of the balcony is at least equal to that required for the floor of the building which gives access to the balcony;

54.2 *(Cont)*

(e) the balcony is provided with means of egress therefrom as required by the provisions of Part 24 of this Manual; and

(f) in a building which is of Type 1, 2, 3, or 4 construction, except a Class I or Class X building, if any part of an opening in the external wall of a storey next above the awning is:

(i) in the plane of the wall to which the awning is attached; and

(ii) vertically above any part of the awning, the awning is of incombustible construction or if of combustible construction, is separated from the opening above by construction complying with the provisions of Clause 22.3 (2) as though the awning were an opening and the building were of at least Type 2 construction.

Special provisions over streets or ways.

(2) No awning shall be constructed over a public road, street or space unless –

(a) it is cantilevered or otherwise entirely supported from the building;

(b) it has a continuous lining or soffit and is constructed throughout of incombustible material except that battens of timber may be used for fixing linings;

(c) it is set back at least 450 mm from the kerb at a height of not less than 3 m above the level of the face of the kerb as prescribed in Clause 15.3 (3) of this Manual; and

(d) the roof of the awning is impervious to water and is so drained with an approved system that water will not fall on to the public place; and

(e) the approved drainage system which incorporates rainwater heads and rainwater pipes is in accordance with Clause 15.6 of this manual.

(3) No balcony shall be constructed over a public road, street or space.

Moveable awnings and sun blinds.

(4) No moveable awning or sun blind shall be constructed or attached to any building or to any fixed awning of a building over any public place unless –

(a) the awning or sun blind when fully lowered is everywhere at least 2.3 m above the footpath;

(b) no part of the awning or sun blind projects more than 1.9 m from the building, to which it is attached;

(c) no part of the awning or sun blind shall encroach within 450 mm from the kerb; and

(d) all steel or iron work in the awning or sun blind is protected against corrosion.

54.3 (1) For the purpose of this Clause "carport" includes an awning or balcony capable of sheltering a motor car. *Carports: interpretation.*

(2) No carport shall be constructed unless it is open and without doors — *Carports to be open.*

(a) along the full length of at least one side; and

(b) for at least two thirds of the total perimeter of the carport.

(3) If a carport is attached to a building the provisions of Clause 54.2 and Part 50 shall apply so far as they are applicable. *Attached carports.*

54.4 (1) (a) No person shall construct any structure which is a bridge, gangway, portico, cornice, hoarding (including a trade sign), sky-sign, aerial antenna, flagpole, mast, tower, lantern, gargoyle, cathead, crane, chimney, flue or duct, installation or machine for cleaning windows, or any structural or ventilating attachment to a building, or a tunnel which is ancillary to a building or structure, unless the requirements of the provisions of this Clause are satisfied; and

(b) In a tropical-cyclone area, a non-loadbearing aerial, antenna, flagpole, mast or tower, which is detached and less than 5 m in height, or is attached to a building and is not more than 2.5 m in height is not to be required to be approved by the Commission.

(2) All steel or iron work of every aerial, antenna or flagpole shall be protected against corrosion. *Steel to be protected.*

(3) No part of the structure, or structural or ventilating attachment, or pipe, shall overhang any public place at a height of less than 2.5 m above the footpath. *Height above public places.*

(4) No part of the structure, or structural or ventilating attachment, or pipe, shall overhang any public place unless drainage from that equipment is satisfactory. *Drainage from ventilating equipment.*

(5) The structure shall be protected from lightning to the satisfaction of the Electrical Supply Authority. *Protection from lightning.*

(6) Structural calculations for the structure, its attachment to the buildings and the building shall be submitted to the Commission for approval. *Structural calculations required.*

GROUP VIII – ANCILLARY PROVISIONS

Part 55 – General Services and Equipment

55.1 Electrical wiring in a building which is connected to a public electricity supply source shall comply and be installed in accordance with the requirements of the Electricity Supply Authority and the Commission. *Electrical wiring.*

55.2 *Gas services.* Gas burning appliances installed in a building shall be subject to the requirements of Part 25.

55.3 *Water services.* Water pipes, fittings and appliances connected to a public water supply shall comply with the requirements of the relevant water supply authority.

55.4 *Sewerage and sullage: where connected to public sewer.* (1) Where a building is connected to a public sewerage service, the fixtures, appliances, pipes and fittings for the disposal of sewage and sullage from that building, and their installation, shall comply with the requirements of the relevant Sewerage Authority, and to the approval of the Commission.

Where not connected to public sewer. (2) Where a building is not connected to a public sewerage service, the fixtures, appliances, pipes and fittings for the disposal of sewage or sullage from that building and their installation shall comply with the requirements of the Public Health Authority, and be approved by the Commission.

55.5 *Openings in fire-resisting construction: wires and cable.* (1) Wires or cables for electrical, telephone or other services that –

(a) are not enclosed in metal pipes, metal conduits or other non-combustible materials; and

(b) pass through a wall, floor or ceiling required to have a fire-resistance rating;

shall comply with sub-clause (2), (3) and (4) where applicable.

Packing of holes. (2) Where any hole in a floor or ceiling is required to have a fire-resistance rating and exceeds 1.2×10^3 mm^2 or has a cross-sectional dimension greater than 38 mm, the space between any wire or cable referred to in sub-clause (1) and the inside faces of the holes in floors or ceilings through which they pass, including the inside faces of sleeves or the like that may be inserted to carry them, shall be packed solid with gypsum vermiculite plaster, asbestos, or other approved non-combustible material.

Maximum size of opening. Total area of holes limited. (3) The total area of any holes, for the accommodation of wires or cables referred to in sub-clause (1), in any 10 m^2 section of a floor or ceiling required to have a fire-resistance rating shall not exceed 7×10^3 mm^2 in area.

55.6 (1) Ducts and pipes that pass through a wall, floor or ceiling required to have a fire rating, shall be of metal or other non-combustible material, and the space between the duct or pipe and the inside faces of the holes in the walls, floors or ceilings through which they pass, shall be packed solid with gypsum – vermiculite plaster, asbestos, or other approved non-combustible material.

Isolated individual ducts. (2) No duct or opening to provide for the installation of an isolated individual air-conditioning unit shall be closer than 3 m to an external corridor or ramp, which provides a means of egress.

55.7 (1) Where a system of mechanical ventilation or air-conditioning is installed pursuant to any requirement of this Manual that installation shall comply with Specification No. 7 "Air Handling Systems". *Air handling systems. Installation requirements.*

(2) The position of external openings for supply inlets, exhaust outlets and relief openings shall be subject to the approval of the Commission. *Openings subject to approval*

(3) In a building that is required by Part 24 to be provided with one or more fire-isolated stairways, any ducted air-handling system which is designed to recirculate air in the building shall be so installed that – *Operation in event of fire.*

(a) in the event of a fire the system shall operate automatically so that there shall be no recirculation of air and all air shall be exhausted outside the building in a position as approved: and

(b) the action referred to in paragraph (a) shall be arranged to take place by the actuation of a smoke detector at the end of the return air shaft, such detector being of a type suitable for monitoring the presence of smoke in air streams.

(4) Sub-clause (3) shall not apply to a system handling air in one room or one storey only. *Exemptions from sub-clause (3).*

SPECIFICATION NO. 7

(Clause 55.7 of this Manual)

AIR HANDLING SYSTEMS

Scope

This Specification relates to the construction and installation of air handling (mechanical ventilation or air-conditioning) systems required by this Manual and is divided into three Divisions as follows:

Division 1 – Air Quantities.

Division 2 – Fire Precautions in Building with Air-handling Systems.

Division 3 – Fire Dampers.

DIVISION 1 – AIR QUANTITIES

Ventilation, sanitary compartments, bathrooms.

1. (1) Where natural ventilation according to Part 50 is not provided, air shall be extracted from bathrooms, shower rooms, water closets, air locks and laundries at the rate of not less than 8L/sec. m^2 of floor area.

Spaces having harmful products.

(2) Where harmful products such as dust, noxious fumes, vapours, odours, gases and the like are generated in any room or other space within a building, air shall be extracted–

(a) at the rate of not less than 8L/sec. m^2 of floor area, or such greater rate as is considered necessary in the particular case; and

(b) from a position as near to the source of contamination as possible.

Recirculation not allowed and extract requirements.

2. In the rooms and other spaces referred to in Clause 1 –

(a) there shall not be recirculation of any extracted air; and

(b) where there is likely to be a concentration of any harmful products near floor level at least one-half of the air shall be extracted through openings which have their lowest part not more than 300 mm above the floor.

Fresh air quantities.

3. (a) In rooms and other spaces except those referred to in Clause 1, fresh air shall be supplied at the rate of not less than 5L/sec. per person.

(b) For the purposes of sub-clause (a) the number of persons deemed to occupy a room or other space shall be calculated according to Clause 24.28.

Relief openings.

4. Where a mechanical-ventilation system is designed to –

(a) supply air only; or

(b) exhaust air only;

relief venting shall be provided and air shall not pass through the relief openings at a velocity exceeding 4 m/s.

DIVISION 2 – FIRE PRECAUTIONS IN BUILDINGS WITH AIR-HANDLING SYSTEMS.

Fire dampers. Required in certain ductwork.

5. (1) Where the ductwork of an air-handling system passes through a wall or floor that is required to have a fire-resistance rating, fire dampers complying with Division 3 shall be mounted within the ductwork at every point at which it passes through such wall or floor except as otherwise permitted by sub-clause (3), (4) or (5).

Required behind certain grilles.

(2) Where a grille forming part of an air-handling system is installed within a wall that is required to have a fire-resistance rating, a fire damper complying with Division 3 shall be mounted immediately behind that grille except as otherwise permitted by sub-clause (5).

Horizontal supply branch ducts.

(3) It shall not be necessary to install a fire damper in accordance with sub-clause (1) in the case of a horizontal supply branch duct passing through a wall if –

(a) the opening in the wall to accommodate the ductwork –

(i) has a cross-sectional area of not more than 20×10^3 mm^2 ; and

(ii) is not at any part more than 1200 mm above floor level or less than 6 m from any other unprotected ductwork opening within the room;

(b) the duct at the point at which it passes through the wall, and any continuation ducting within 1200 mm of that part is of non-combustible material with a fusing temperature of not less than 980°C;

(c) the space between the duct and the perimeter of the opening in the wall shall be packed solid with non-combustible material with a fusing temperature of not less than 980°C;

(d) the air which passes through the duct is discharged at heights of not more than 1200 mm above floor level.

Return-air shafts.

(4) It shall not be necessary to install a fire damper in accordance with sub-clause (1) where the duct passes through a wall and discharges air into a fire-isolated return-air shaft, where the following conditions are observed –

(a) The opening in the wall of the return-air shaft to accommodate the duct has a cross-sectional area of not more than 52×10^3 mm^2 .

(b) The section of duct discharging into the return-air shaft is of non-combustible material with a fusing temperature of not less than 980°C.

DIVISION 2 *(Cont)*

5. (4) (c) Except where the system is designed to draw return-air downwards in the return-air shaft, the section of duct discharging into the shaft shall have a vertical upstand within the return-air shaft of not less than 510 mm measured from the upper side of the horizontal duct to the point of discharge.

(d) The space between the duct and the perimeter of the opening in the wall of the return-air shaft is packed solid with non-combustible material with a fusing temperature of not less than 980°C.

Exhaust ducts serving sanitary compartments, bathrooms.

(5) It shall not be necessary to install a fire damper in accordance with sub-clause (1) or sub-clause (2) in the case of a grille or horizontal exhaust branch duct serving only as a means of exhausting air from a bathroom, shower room, water closet, or laundry into a fire isolated shaft if –

(a) the shaft is designed to operate at negative pressure;

(b) the grille or section of duct exhausting into the shaft –

(i) is of non-combustible material with a fusing temperature of not less than 980°C; and

(ii) has attached to it a vertical upstand within the shaft of not less than 510 mm measured from the upper side of the grille or duct to the point of discharge; and

(c) the space between the grille or duct and the perimeter of the opening in the wall of the shaft is packed solid with non-combustible material with a fusing temperature of not less than 980°C.

Vertical air ducts.

6. Vertical air ducts that perforate two or more consecutive floors –

(a) in a building of Type 1 construction shall be contained in a shaft having a fire-resistance rating of not less than –

(i) 1½ hours in Class II; III or V buildings; or

(ii) 2 hours in Class VI, VII or VIII buildings; and

(b) in a building of Type 2 construction shall be contained in a shaft having a fire-resistance rating of not less than 1 hour.

Fire-rated floor-ceiling or roof-ceiling ducting.

Ducting.

7. (1) The space above a suspended ceiling which forms part of a fire-rated floor-ceiling or roof-ceiling construction shall not contain ducting unless ducting was incorporated in a prototype that qualified for the required fire-resistance rating, in which case the ducting shall be identical with that incorporated in the tested prototype.

DIVISION 2 *(Cont)*

7. (2) Openings in the ceiling, including openings to enable the ceilings to be used as a plenum, shall be protected by fire dampers identical with those used in the tested prototype and such openings in the ceiling shall be so arranged that – *Openings.*

(a) no opening is greater in area than that corresponding in the prototype test panel;

(b) the aggregate area of the opening per unit ceiling area does not exceed that of the prototype test panel; and

(c) the proximity of any opening to any structural member is not less than that in the prototype test panel.

8. A fire-isolated stairway, fire-isolated passageway, or fire-isolated ramp shall not be used as a plenum to introduce air into or extract air from other areas except when air-handling systems are brought into operation to control the flow of smoke in a fire situation. *Fire-isolated stairs and passageways.*

9. Duct heaters shall be designed and installed in accordance with the following requirements: *Duct heaters.*

(a) All elements shall be sheathed.

(b) The temperature of the element shall be so controlled that rise in temperature above the designed maximum working temperature shall cause the heating element to be de-energised.

(c) The duct shall be insulated for a distance of not less than 255 mm on either side of the heater with non-combustible material of thermal conductance not greater than 30 W/(m² K) at 93.3°C.

10. Air filters shall be designed and installed in accordance with the following requirements: *Air filters.*

(a) Liquid-adhesive coatings shall have a flash point not less than 163°C as measured in a Cleveland Cup Tester.

(b) Electrostatic air filters which are not preceded by or followed by fabric or liquid-adhesive type filter shall be provided with lint screens readily accessible for removal for cleaning and not coarser than sieve of aperture size 1.00 mm according to Australian Standard 1152 "Australian Standard Specification for Test Sieves".

(c) Where the building has a system of smoke detectors installed, smoke detectors of a type suitable for monitoring the presence of smoke in air streams shall be installed in the air-handling system on the discharge side of the filters.

DIVISION 2 *(Cont)*

10. (d) Where the building has a sprinkler system installed, air filters, other than electrostatic filters, shall be sprinkler protected.

Duct materials.

11. (a) Ducts for pressurisation of fire-isolated stairways, fire-isolated ramps and fire-isolated passageways shall be of non-combustible construction having a fire-resistance rating of not less than 1 hour.

(b) A duct that passes through a wall or floor required to have a fire-resistance rating shall be constructed of rigid non-combustible material extending on both sides of the wall or floor for a distance of not less than three times the diagonal or diameter of the duct, as the case requires, the distance being measured from the surface of the wall or floor concerned.

Duct linings.

12. Internal duct linings shall comply with one of the following alternative requirements:

(a) The linings shall be fully encased in sandwich panel unperforated-metal sheeting continuous around all edges, with seams which form effective seals and where gaskets are used the joints shall be completely covered on both faces by strips of metal to seal the joint completely.

(b) The linings, including adhesives and surfacing materials, shall have a Spread-of-Flame Index not greater than 0 and a Smoke Developed Index not greater than 5, both as determined in the Standard Fire Test.

Return-air systems.

13. Return-air systems shall be so designed and constructed that –

(a) their integrity as a continuously enclosed system of air passages is preserved, from all points of entry to the point of discharge; and

(b) the aerodynamic design ensures that, under all circumstances of operation, the air pressure at all points of entry is not less than 37 Pa greater than at the point of discharge.

DIVISION 3 – FIRE DAMPERS

Fire damper, Interpretation.

14. A fire damper means a device manufactured completely of non-combustible materials (except for paints and similar finishes) and which consists of one or more blades arranged to pivot or slide when released by a sensing device so as to restrict the passage of fire and products of combustion.

DIVISION 3 *(Cont)*

15. (1) A fire damper required by this Specification to be mounted within the ductwork of an air-handling system shall – *Fire damper construction.*

(a) be located centrally within the thickness of the wall or floor at the point through which the ductwork passes and where necessary –

(i) the wall or floor adjacent to the damper shall be increased in thickness to accommodate the damper; or

(ii) the projection of the damper outside the plane of the wall or floor shall be encased in fire-protective material equal to the fire-resistance rating of the wall or floor;

(b) be attached to ductwork in such a manner that any deformation or collapse of the ductwork under fire conditions will not dislodge the damper or affect its operation or performance; and

(c) have a fire-resistance rating of not less than that required for the wall or floor through which the relevant section of the ductwork passes.

(2) Nothing in this Part shall be deemed to prohibit the use of a fire door as a fire damper where the circumstances so require. *Use of fire doors as dampers.*

16. Every damper shall be a replica of the tested prototype and – *Damper to be a replica of prototype.*

(a) shall not have a mounting area greater than that of the prototype;

(b) shall not have blades that are –

(i) longer than those of the prototype; and

(ii) greater than 1.125 of less than 0.9 times the width of the prototype; and

(c) shall not have any of its components of a lesser thickness than those of the prototype.

17. Hinge mechanisms and blade assemblies shall be so designed and manufactured that operation of the fire damper will not be affected by corrosion or the accumulation of dust. *Hinge mechanism.*

18. Where a release mechanism is incorporated in the design of a fire damper – *Access to release mechanism.*

(a) convenient access shall be provided to facilitate removal of the release mechanism for inspection and replacement; and

(b) no device shall be incorporated which will prevent the damper from closing while the release mechanism is removed.

DIVISION 3 *(Cont)*

Locking device for gravity-operated dampers.

19. A positive action locking device shall be provided for each gravity-operated fire damper to retain automatically the blades in the closed position when the damper is operated, and a convenient means of access shall be provided to enable hand resetting of the locking device.

Motorised damper.

20. A motorised fire damper –

(a) shall operate on the principle that, in the event of loss of motive power, the damper will close;

(b) shall have a drive that is either direct or by means of a rigid linkage to the damper blade or shaft; and

(c) shall have its drive mechanism mounted either completely inside or completely outside the damper.

Volume control mechanism.

21. Where a fire damper is used for the purposes of both air volume control and fire-protection the volume control mechanism –

(a) shall not restrict the automatic operation of the damper as a fire damper; and

(b) shall be mounted either completely inside or completely outside the damper.

Testing. Type of test according to material.

22. (1) Each fire damper submitted for test shall comply with the following tests in the order stated –

(a) when steel parts used in the pivot assembly are manufactured of stainless steel having a corrosion resistance of not less than the 300 series of stainless steels –

(i) dust test (sub-clause (3));

(ii) air-leakage test (sub-clause (4)); and

(iii) fire-resistance test (sub-clause (5));

(b) when steel parts used in the pivot assembly are not manufactured of stainless steel having a corrosion resistance of not less than the 300 series of stainless steels –

(i) corrosion test (sub-clause (2));

(ii) dust test (sub-clause (3));

(iii) air-leakage test (sub-clause (4)); and

(iv) fire-resistance test (sub-clause (5)).

Corrosion test.

(2) The corrosion test shall be carried out as follows:

(a) The fire damper shall be completely degreased by treatment with an organic solvent prior to the test.

(b) A salt solution consisting of 20 per cent by weight of sodium chloride and 80 per cent of water and having a pH between 6.5 and 7.2 and specific gravity at 35°C

(2) (b) between 1.126 and 1.157 shall be sprayed in the form of a fine mist at 35°C to come into contact with all of the interior surfaces of the fire damper for three minutes at three hourly intervals three times per day for three days.

(c) The fire damper shall then be allowed to dry for not less than 24 hours at ambient air temperature.

(d) The fire damper shall be operated after the test and shall close in the manner in which it is designed to close in normal use.

(e) The fire damper shall then be subjected to and shall comply with the dust test described in sub-clause (3).

Dust test.

(3) The dust test shall be carried out as follows:

(a) Dust of particle size not greater than 50 μm shall be poured over the pivot assembly with the damper blades in the open position until no more dust can be retained on the pivot assembly.

(b) The fire damper shall then be closed.

(c) The procedure described in paragraphs (a) and (b) shall be repeated fifty times.

(d) The fire damper shall be operated after the test and shall close in the manner in which it is designed to close in normal use.

Air-leakage test.

(4) The air-leakage test shall be carried out as follows:

(a) The damper shall be closed and a differential pressure shall be applied across the damper.

(b) The rate of flow through the damper, measured in m^3/min –

(i) shall be measured by a method conforming with BS 1042 "Methods for the Measurement of Fluid Flow in Pipes";

(ii) shall not be greater than the face area of the damper (in square metres) multiplied by the following factors:

16 at 1.245 kPa
15 at 0.996 kPa
13 at 0.747 kPa
10 at 0.498 kPa
6 at 0.249 kPa

Fire-resistance test.

(5) The fire-resistance test shall be carried out in accordance with Australian Standard A30 "Fire Tests on Building Materials and Structures", Section 4, Fire-resistance Test of Structures.

DIVISION 3 *(Cont)*

Marking.

23. The following information shall be marked in a permanent and legible manner on a durable and corrosion-resistant plate permanently attached to the fire damper in a location where the information can be viewed after the fire damper has been installed:

    (i) Manufacturer's identification.

    (ii) Fire-resistance rating in hours.

    (iii) Maximum temperature for operation of the release mechanism.

    (iv) Critical instructions regarding installation, such as direction of air flow, top of damper, maximum air velocity, whether lintel beam is required in installation.

55.8 (1) Every required fire-isolated stairway, fire-isolated ramp and fire-isolated passageway which serves a building having a rise of more than six storeys shall be protected from the entry of smoke by one of the alternative sets of requirements set out in sub-clause (3) or sub-clause (4). *Exclusion of smoke from Fire-isolated stairways, ramps and passageways in buildings over six storeys.*

(2) Every fire-isolated stairway, fire-isolated ramp and fire-isolated passageway that serves three or more storeys from which egress would involve a vertical rise within the building of more than 1.5 m shall be protected from the entry of smoke in accordance with sub-clause (3). *Serving below-ground storeys.*

(3) The fire-isolated stairway, fire-isolated ramp or fire-isolated passageway shall be positively pressurised by means of a pressurising system constructed to operate in the event of fire on any storey by the actuation of – *Pressurisation.*

(i) approved automatic smoke detection devices located in the storey and close to every doorway affording access to the fire-isolated stairway, fire-isolated ramp, or fire-isolated passageway (except doorways provided pursuant to the provisions of paragraph (b) of clause 24.8); and

(ii) any other required automatic fire-detection system that is installed in the building.

(b) The pressurizing system shall be so constructed that when it comes into operation:

(i) the system will be capable of maintaining an airflow into the storey of not less than 1 m/s through the doorways leading from any two successive storeys when the two doors forming part of those doorways, together with the main discharge door, are in the fully open position; and

(ii) the system will be capable of maintaining a positive pressure differential between the stairway, ramp or passageway, as the case may be, and any storey served thereby of not more than 50 Pa when all doors of such stairway, ramp or passageway are in the fully closed position.

(c) No openable window or other openable device (other than necessary doorways, pressure-controlled relief louvres and windows openable by a key) shall be constructed in the stairway, ramp or passageway.

(d) A pressurizing system may serve more than one fire-isolated stairway, fire-isolated ramp or fire-isolated passageway but shall not form part of any other air-conditioning or ventilating system.

55.8 *(Cont)*

(e) Ducts used for the pressurizing system shall be of non-combustible construction having a fire-resistance rating of not less than one hour and shall draw air from outside the building through inlets in positions as approved.

(f) The electrical service for the pressurizing system shall be connected to the supply side of the main dis-connection switch for the building and shall consist of copper-sheathed mineral-insulated cable; or

(g) be protected on all sides by material having resistance to fire of not less than that provided by 12.5 mm of gypsum plaster or 25 mm of cement render on metal lath.

Balcony access.

(4) As an alternative to complying with sub-clause (3) every means of access from within the building to a fire-isolated stairway, fire-isolated ramp or fire-isolated passageway shall be by way of an open access ramp or balcony complying with the following requirements:

(a) It shall have an unobstructed ventilation opening to the outside air –

(i) of area not less than the floor area of the ramp or balcony; and

(ii) which is evenly distributed along the open sides of the ramp or balcony.

(b) It shall not be enclosed on its open sides above a height of 1070 mm except by an open grille or the like having a free air space of not less than 75 per cent of its area.

FIGURE 55.8
ILLUSTRATING SUB-CLAUSE 55.8 (4)

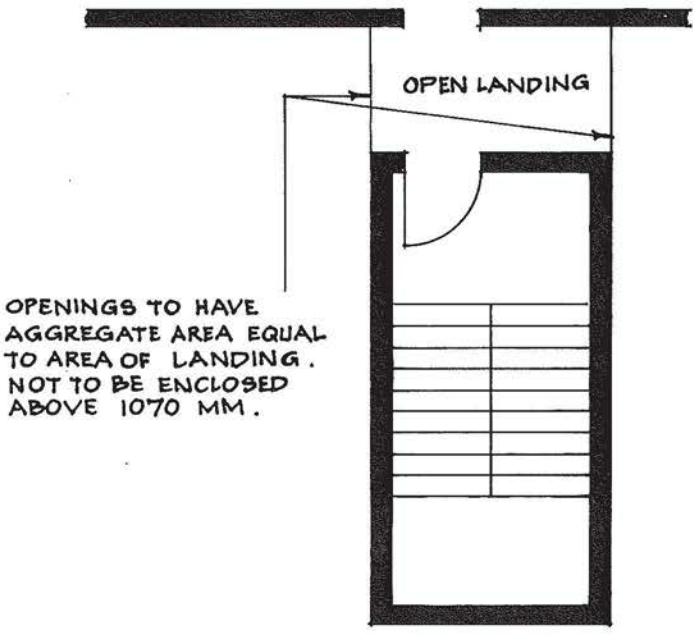
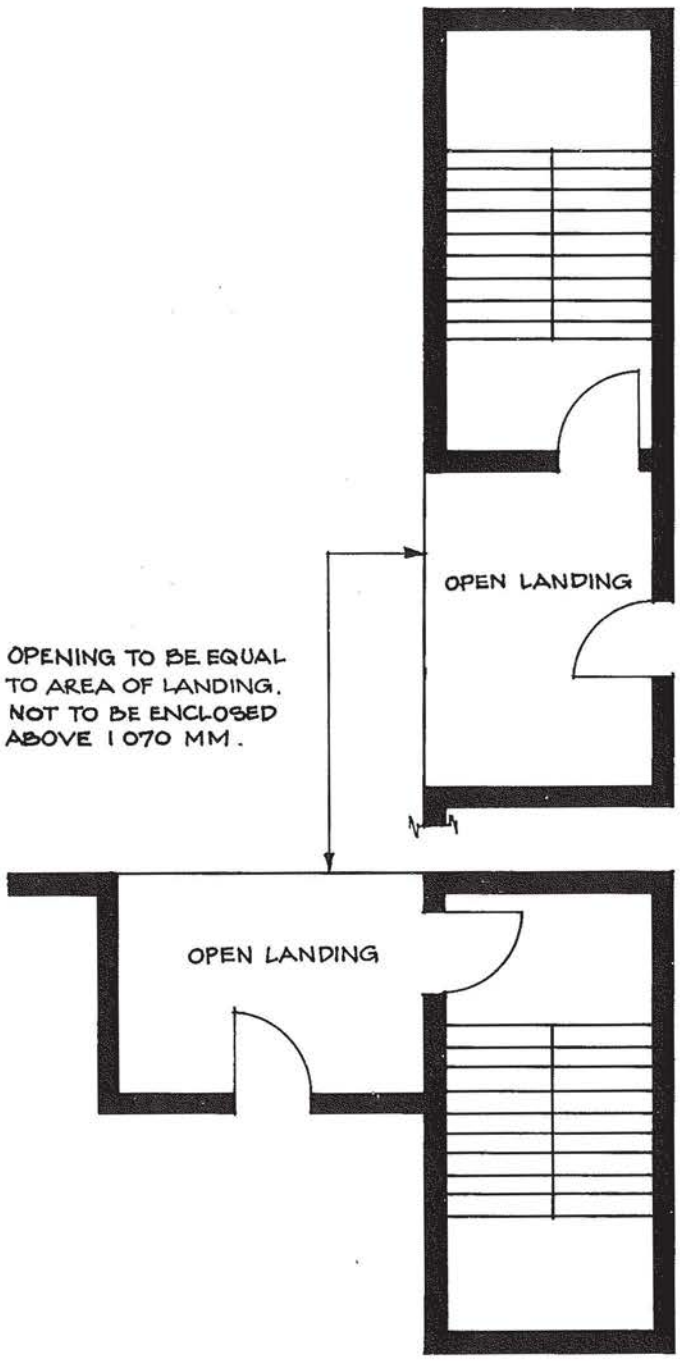


FIGURE 55.8
ILLUSTRATING SUB-CLAUSE 55.8 (4)



55.9 (1) All buildings in which the floor of the topmost storey is more than 21 m above the floor of the lowest storey providing egress to a public place or open-space shall have at least one lift capable of becoming an emergency lift to serve all floors served by the lifts in the building.

Buildings with floors higher than 21 m to have emergency lift.

(2) For the purposes of this Part an emergency lift shall mean a lift which has its operating controls so installed that it may be removed from normal automatic operation by means of a keyed switch located in the lift lobby of the main entrance storey of the building, or other approved location.

Requirements for emergency lifts.

(3) Every lift capable of being used as an emergency lift pursuant to the provisions of this clause shall have its electrical service connected to the supply side of the main dis-connection switch for the building and such electrical service shall consist of a copper-sheathed mineral-insulated cable.

Electrical requirements.

(4) An emergency lift installation shall be so constructed that upon the operation of the keyed switch referred to in sub-clause (2) –

Operation of controls.

(a) The lift shall return to the floor of the storey in which the keyed switch is located and doors shall open and if the lift must stop and reverse in order to return to that storey the doors at the reversal floor shall not open;

(b) All light beam or electronic door protective devices on all emergency lifts shall be de-activated but the protection from door edge re-opening devices shall be retained;

(c) The lift shall respond only to the controls within the car;

(d) The lift doors shall not open at any floor other than the floor of the storey in which the keyed switch is located unless the "Open Door" button is pressed and, when so opened, the doors shall remain open until the "Close Door" button is pressed;

(e) All lifts in the building shall return to the floor of the storey in which the keyed switch is located.

55.10 (1) The top of every lift shaft shall be ventilated to the outside air by unobstructed openings having an aggregate area of not less than 10 per cent of the cross-sectional area of the shaft.

Ventilation of Lift Shafts: minimum area.

(2) The unobstructed openings referred to in sub-clause (1) shall be so arranged as to induce exhaust ventilation of the shaft.

Cross ventilation.

55.11 (1) A warning sign conforming with the details and dimensions of Figure 55.11 shall be displayed in a conspicuous position near every call button for a lift or group of lifts throughout a building.

Warning against use of lifts in fire; signs to be displayed.

55.11 (2) The warning sign shall consist of –
(Cont)

Details of signs.

(a) incised, inlaid or embossed letters on a metal, wood, plastic or similar plate securely and permanently attached to the wall; or

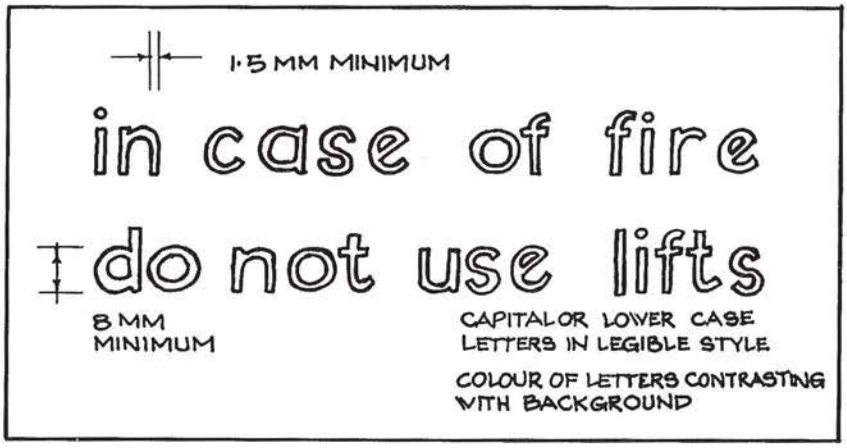
(b) letters incised or inlaid directly into the surface of the material forming the wall.

Exception for certain small lifts.

(3) It shall not be necessary to install a warning sign for a small lift such as a dumb waiter or the like that is intended for the transport of goods only.

FIGURE 55.11

ILLUSTRATING THE REQUIREMENTS OF REGULATION 55.11 (1) and (2)



55.12 Where no requirement is made in this Part in regard to lift installations, the installation shall be in accordance with Australian Standard CA3 "SAA Lift Code".

GROUP VIII – ANCILLARY PROVISIONS

Part 56 – Alteration, Restoration and Repair

Restoration of buildings.

56.1 Where any building is destroyed, demolished or pulled down to the extent of more than half of its cubic content exclusive of foundations, such building shall not be restored, reconstructed, or repaired except in accordance with this Building Manual, and to the approval of the Commission.

Re-erection of buildings.

56.2 In the event of the destruction by fire or other unforeseen cause of any building which exceeds the maximum height permitted under Parts 17 and 18 of this Building Manual such building shall not be reconstructed except in conformity with the provisions of this Building Manual, and –

Alterations and additions to buildings.

(a) General – All alterations, additions and repairs to buildings shall conform to the provisions of this Building Manual, and –

Minor alterations and repairs.

(b) If alterations and/or repairs in excess of 50 per cent of the cubic content of an existing building are made to such building the entire building shall be made to conform to the requirements of this Building Manual.

Changed occupancy.

(c) (i) If the existing use of occupancy of a building is changed and the building does not conform to the requirements of this Building Manual for the proposed new occupancy, the entire building shall be brought into conformity with this Building Manual, except that if the use or occupancy of only portion of the buildings is changed and such portion is separated from the remainder of the building in accordance with the provisions of Parts 7, 16, 17, or 18, then such portion only need be made to comply with this Building Manual.

(ii) Any existing building not covered by the preceding paragraph which has its floor area or its number of storeys increased or its use or occupancy changed shall be provided with exits and fire protection facilities as required by this Building Manual for the proposed new occupancy or occupancies.

Minor alterations and repairs.

(d) Minor alterations and repairs not covered by the preceding paragraphs may be made with the same type of materials as used in the original construction provided that the work is made to conform to the requirements of this Building Manual.

Buildings in tropical cyclone areas.

56.3 Where any building is in a tropical cyclone area as defined in Australian Standard AS 1170 Part 2 "Wind Forces", and major alterations, additions or repairs are to be made to such building, the entire building shall be made to conform to the requirements of this Building Manual.

GROUP VIII – ANCILLARY PROVISIONS

Part 57 – Ruinous and Dangerous Buildings.

57.1 *Inspections and tests.*

Where a building or a part of a building is in a ruinous state or is dangerous to the public or is unfit or unsuitable for human habitation, inspections and tests may be required as necessary to determine whether the building or any part of the building is in a ruinous state or dangerous to the public or unfit or unsuitable for human habitation, occupation or use.

57.2 *Requirements following inspections.*

(1) Where after inspections and tests a building or any fixture attached to a building is in a ruinous state or is dangerous to the public –

(a) a proper boarding or fence or props shall be erected for the protection of the public and the occupiers; and

(b) where necessary, the adjoining buildings shall be properly shored up.

(2) Where a building or fixture is found to be in a ruinous and dangerous condition, and where the circumstances so warrant a notice will be served by the Commission on the owner of the building or fixture, requiring him to pull down, secure or repair such building or part of a building or fixture in accordance with the requirements of this Manual; and

(3) Such notice shall require the owner of the building or fixture to comply within a time specified on the notice.

57.3 *Failure to comply.*

Where on a notice to pull down, secure or repair a building or part of a building or fixture is served, the owner, shall be guilty of a breach of this Manual, if the said owner does not pull down, secure or repair a building, part of a building or fixture within the time specified.

GROUP VIII – ANCILLARY PROVISIONS

Part 58 – Temporary Structures

58.1 *Interpretation.*

(1) In this Part and for the purposes of this Manual "temporary structure" shall not include –

(a) any building designed for use for residential purposes;

(b) any building erected by way of alteration, addition, or extension to an existing building;

(c) any building more than one storey in height; except that –

Conditions limiting period of time.

(2) Where a conditional approval has been given limiting the period during which the temporary structure shall be allowed to remain in place, the building may be used for residential purposes as approved by the Commission.

58.2 (1) A temporary structure shall not be used for –

Temporary buildings not to be used for certain purposes.

(a) residential purposes, except under clause 58.1 (2);

(b) the storage or handling of inflammable materials;

(c) any purpose after the expiration of the period determined under a conditions approval, but not longer than a period exceeding two years from the date of approval.

58.3 (1) A conditional approval may be subject to such other conditions as a location, construction or provisions of conveniences for sanitation or otherwise as may be imposed by the Commission; and

Other conditions of approval.

(2) The temporary structure shall then be constructed in accordance with the particulars upon which the approval has been given.

FIRST SCHEDULE

(Clauses 6.1, 16.11, 19.2, 19.6, 19.7, 19.10 refer)

Buildings and spaces of Abnormal Fire Hazard.

(a) Any building or space within a building that is used for:

(i) the storage of goods only, or the display of goods for sale by wholesale; or

(ii) a handicraft; or

(iii) a process in or incidental to the making, assembling, altering, repairing, renovating, preparing, ornamenting, finishing, cleaning, washing, or adapting of goods; or

(iv) a process in a laboratory,

and in which a principal material concern is one of the following:

Bitumen, tar, or any product thereof, including –

(a) asphalt;

(b) caulking and sealing compounds; and

(c) surfacing materials;

Cork;

Enamel, lacquer, paint, or varnish;

Explosive, fireworks, or matches;

Fibre or any fibrous product, including –

(a) bristles, cloth, cord, felt, fur, raw fibres, straw, and thread; and

(b) made-up products of cotton, flax, hemp, jute, silk, synthetic fibres, or wool, including bedding, carpets, and upholstery.

FIRST SCHEDULE *(Cont)*

Flammable gas or flammable liquid, including –

(a) liquified petroleum gas;

(b) natural gas and coal gas; and

(c) hydrogen;

Fodder or any foodstuff –

(a) including grain and kernels (whether as cereal or crushed and milled);

(b) excluding fresh food such as fish, fruit, meat, and vegetables;

Gum, polish, resin, or wax, or any product thereof, including linoleum, oilcloth, and tarpaulin;

Inorganic chemical such as –

(a) calcium carbide, potassium nitrate, and sodium nitrate;

(b) metallic sodium and phosphorous; and

(c) finely powdered metal;

Leather, skin, or any product thereof, including boots, shoes, furs, and clothing;

Oil (animal, mineral, or vegetable), including animal fats and refined oils, or any product thereof;

Organic chemical comprising –

(a) alcohol or any alcoholic liquor;

(b) any industrial solvent;

(c) any synthetic resin;

(d) any cellulose product;

(e) any peroxide; or

(f) any like material;

Paper or any paper product, including –

(a) books, cardboard, and fibre containers; and

(b) newsprint, except when stored in rolls;

Plastic or any plastic product, including cellulose acetate and nitro-cellulose (such as celluloid or pyroxlyn);

Rubber (natural or synthetic) or any product thereof, including motor tyres, foamed rubber, and garments; or

Timber or any timber product, including fibreboard, particle board, and plywood.

Notes:

Notes:

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