STAIRWAY REQUIREMENTS

Doors: Maximum projection into required width of exit 510 mm

FIGURE 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.

(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.

(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.

24.25. (1) The flight of a required stairway shall have not more than 18 or less than 2 risers.

(2) The going and riser height of a flight of stairs in a required stairway shall be constant throughout that flight.

(3) The treads of a flight of stairs in a required stairway shall—

(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.

(5) 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.
**TABLE 24.25.**

**LIMITS OF RISER HEIGHT AND GOING.**

<table>
<thead>
<tr>
<th>Shape of treads in plan</th>
<th>Riser height $R$ in mm</th>
<th>Going $G$ in mm</th>
<th>Quantity $2R + G$</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rectangular</td>
<td>190</td>
<td>115</td>
<td>395</td>
</tr>
<tr>
<td></td>
<td>Wide end of tread</td>
<td>Narrow end of tread</td>
<td>Wide end of tread</td>
</tr>
<tr>
<td>Tapered as in a curved stairway</td>
<td>190</td>
<td>115</td>
<td>445</td>
</tr>
</tbody>
</table>

**Figure 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 ramp.

(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.
Ordinance No. 70—Local Government Act 1919.

(3) The floor surface of a ramp shall have a non-slip finish.

24.27. (1) A handrail or balustrade shall be provided along the 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.

(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 1 525 mm or more in width, a handrail shall be provided along each side.

(3) Required handrails shall be fixed at a vertical height of not less than 865 mm above—

(a) the nosings of stair treads; and

(b) the floor surface of ramps, landings, corridors, hallways, external access balconies, bridges and the like,

and 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 shall be continuous between stair flight landings.

24.28. (1) This clause shall apply wherever this Part regulates the minimum width of required exits or doorways leading to required exits according to the number of persons accommodated in a storey.

(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.
Ordinance No. 70—Local Government Act, 1919.

(3) Where a particular use of 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 by the Council.

(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.**

<table>
<thead>
<tr>
<th>Type of use</th>
<th>Square metres per person</th>
</tr>
</thead>
<tbody>
<tr>
<td>Assembly room for—</td>
<td>1.2</td>
</tr>
<tr>
<td>(a) civic, political, transit, religious, social or recreational purposes</td>
<td>1.2</td>
</tr>
<tr>
<td>(b) entertainment or amusement</td>
<td>1</td>
</tr>
<tr>
<td>Bar</td>
<td>1</td>
</tr>
<tr>
<td>Boiler</td>
<td>30</td>
</tr>
<tr>
<td>Board room</td>
<td>2</td>
</tr>
<tr>
<td>Boarding-house</td>
<td>15</td>
</tr>
<tr>
<td>Cafe</td>
<td>1</td>
</tr>
<tr>
<td>Cafeteria</td>
<td>1</td>
</tr>
<tr>
<td>Computer room</td>
<td>25</td>
</tr>
<tr>
<td>Dining room</td>
<td>1</td>
</tr>
<tr>
<td>Factory—</td>
<td>5</td>
</tr>
<tr>
<td>(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</td>
<td>50</td>
</tr>
<tr>
<td>(b) areas used for fabrication and processing other than those in (a)</td>
<td></td>
</tr>
<tr>
<td>(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</td>
<td></td>
</tr>
<tr>
<td>Garage—public</td>
<td>30</td>
</tr>
<tr>
<td>Guest-house</td>
<td>15</td>
</tr>
<tr>
<td>Hostel</td>
<td>15</td>
</tr>
<tr>
<td>Kiosk</td>
<td>1</td>
</tr>
<tr>
<td>Kitchen</td>
<td>10</td>
</tr>
<tr>
<td>Laboratory</td>
<td>10</td>
</tr>
<tr>
<td>Laundry</td>
<td>10</td>
</tr>
</tbody>
</table>
TABLE 24.28—continued.
AREA S PER PERSON ACCORDING TO USE—continued.

<table>
<thead>
<tr>
<th>Type of use</th>
<th>Square metres per person</th>
</tr>
</thead>
<tbody>
<tr>
<td>Library—</td>
<td></td>
</tr>
<tr>
<td>reading space</td>
<td>2</td>
</tr>
<tr>
<td>storage space</td>
<td>30</td>
</tr>
<tr>
<td>Office, including one for typewriting or document copying</td>
<td>10</td>
</tr>
<tr>
<td>Plant room for—</td>
<td></td>
</tr>
<tr>
<td>ventilation, electrical or other service units</td>
<td>30</td>
</tr>
<tr>
<td>boilers or power plant</td>
<td>50</td>
</tr>
<tr>
<td>Reading room</td>
<td>2</td>
</tr>
<tr>
<td>Restaurant</td>
<td>1</td>
</tr>
<tr>
<td>Shop-space for sale of goods—</td>
<td></td>
</tr>
<tr>
<td>(a) at a level entered direct from the open air or any lower level</td>
<td>1.5</td>
</tr>
<tr>
<td>(b) all other levels</td>
<td>3</td>
</tr>
<tr>
<td>Showroom—display area</td>
<td>5</td>
</tr>
<tr>
<td>Staff room</td>
<td>10</td>
</tr>
<tr>
<td>Storage space</td>
<td>30</td>
</tr>
<tr>
<td>Switch room</td>
<td>30</td>
</tr>
<tr>
<td>Telephone exchange—private</td>
<td>30</td>
</tr>
<tr>
<td>Transformer room</td>
<td>30</td>
</tr>
<tr>
<td>Workshop—</td>
<td></td>
</tr>
<tr>
<td>for maintenance staff</td>
<td>30</td>
</tr>
<tr>
<td>for manufacturing processes</td>
<td>As for “Factory”</td>
</tr>
</tbody>
</table>

24.29. (1) The provisions of this clause are subject to the concessions set out in subclause (6) in regard to Class II buildings and subclause (7) in regard to the entrance doors of certain sole-occupancy units.

(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.
Ordinance No. 70—Local Government Act, 1919.

(b) On or near every door discharging from an enclosed stairway or ramp at every level of access to a road or open space.

(3) Exit signs shall also be installed in corridors, hallways, lobbies, and the like, indicating the direction of a required exit, if the Council is of opinion that the location of 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 subclause (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 subclause (3) be installed in positions approved by the Council; and

(c) be illuminated in accordance with the provisions of clause 55.13.

(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 the exit.

(6) The foregoing provisions shall not apply to a Class II building in which every door referred to in paragraphs (a) and (b) of subclause (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.

(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.
Ordinance No. 70—Local Government Act, 1919.

**FIGURE 24.29**

- Colour different from details of wall, etc., on which mounted.
- Capital letters in legible style, colour contrasting with background, illuminated or self-luminous, in accordance with paragraph (c) of clause 24.29—(4).
- Arrow (if required to indicate direction of exit); position on sign optional; colour contrasting with background, illuminated or self-luminous, in accordance with paragraph (c) of clause 24.29—(4).

**TABLE 24.29.**

**MINIMUM DIMENSIONS.**

<table>
<thead>
<tr>
<th>Dimension</th>
<th>Minimum value permitted</th>
</tr>
</thead>
<tbody>
<tr>
<td>a</td>
<td>100 mm</td>
</tr>
<tr>
<td>b</td>
<td>( \frac{1}{2} a )</td>
</tr>
<tr>
<td>c</td>
<td>12 mm</td>
</tr>
<tr>
<td>d</td>
<td>100 mm</td>
</tr>
<tr>
<td>e</td>
<td>( \frac{1}{2} d )</td>
</tr>
</tbody>
</table>

Note. Figure 24.29 and Table 24.29 do not apply to a Class II building complying with subclause (6) of Clause 24.29.

**Division 3.—Class II and III Buildings.**

24.30. This Division, in addition to Division 1 and Division Application 2, shall apply to Class II and Class III buildings, but shall not of Division apply to any sole-occupancy unit or room therein which has its own direct access to a road or open space.

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24.31. (1) In a building having a rise of not more than eight storeys, one exit only shall be required except where—
(a) the building is subject to subclause (2); or
(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.

(3) In a building having a rise of more than eight storeys, at least two exits shall be provided.

24.32. (1) Where only one exit is required in a Class II or Class III building—
(a) the entrance doorway of a sole-occupancy unit shall be not more than 5.5 m from that exit; and
(b) no point on the floor of a room, not being a room in a sole-occupancy unit, shall be more than 15 m from that exit.

(2) Where two or more exits are required in a Class II or Class III building—
(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 point on the floor 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 or 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.
24.34. (1) In this clause, the "nearest part of an exit" shall mean—

(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:

(a) In the case of a room, not being a sole-occupancy unit, the distance shall include the straight-line measurement from any point on the floor 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. 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) that is common to two or more of them.

24.36. (1) In a Class II building every required stairway shall be a fire-isolated stairway, except as conceded in subclause (2).

(2) Non-fire-isolated stairways may serve as required exits in a Class II building—

(a) if the stairways connect—

(i) no more than 3 storeys; or

(ii) no more than 4 storeys if the building is deemed to be a Class II building by virtue of clause 6.7 (2) (a);

(b) if, where egress from a storey referred to in clause 6.7 (2) (a) (ii) involves a vertical rise within the building of more than 1 m, that egress is separated from the rest of the storey by a construction having a fire-resistance rating of not less than 1 hour; and

(c) if clause 24.38 is complied with.

24.37. (1) In a Class III building every required stairway shall be a fire-isolated stairway, except as conceded in subclause (2).
Ordinance No. 70—Local Government Act, 1919.

(2) Non-fire-isolated stairways may serve as required exits in a Class III building—

(a) if the stairways connect—

(i) no more than 2 storeys; or

(ii) no more than 3 storeys if the building is deemed to be a Class III building by virtue of clause 6.7 (2) (b);

(b) if, where egress from a storey referred to in clause 6.7 (2) (b) (ii) involves a vertical rise within the building of more than 1 m, that egress is separated from the rest of the storey by a construction having a fire-resistance rating of not less than 1 hour; and

(c) if clause 24.38 is complied with.

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—

(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 subclause (1), the distance to a stairway shall be measured in accordance with clause 24.34, the remainder of the distance being measured—

(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—
(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 1,980 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 vertical clearance throughout of 2,030 mm and a minimum unobstructed width throughout of 1,020 mm.

Division 4.—Class IV, 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, and VIII buildings and any Class IV portion thereof.

24.41. (1) In a Class V building having a rise of not more than eight storeys, one exit only shall be required except where the requirements of subclause (1) of clause 24.43 cannot be met by the provision of a single exit.

(2) In a Class V building having a rise of more than eight storeys at least two exits shall be provided.

(3) Notwithstanding the requirements of subclause (2) in a Class V building in which—
(a) the floor of the topmost storey is not more than 42 m above the floor of the lowest storey providing egress to a road or open space;
(b) an approved sprinkler system is installed throughout the building; and

(c) the requirements of subclause (1) of clause 24.43 are met,

one exit only shall be required from those storeys which are not subject to subclause (4).

(4) Where egress from a storey in a Class V building would involve a vertical rise within the building of more than 1.5 m, at least two exits shall be provided from that storey.

24.42. (1) In a Class VI, VII, or VIII building having a rise of not more than one storey, one exit only shall be required except where the requirements of subclause (1) of clause 24.43 cannot be met by the provision of a single exit.

(2) In a Class VI, VII, or VIII building having a rise of two storeys in which the upper storey has a floor area not exceeding 180 m², one exit only shall be required except where—

(a) the requirements of clause 24.16 or subclause (1) of clause 24.43 cannot be met by the provision of a single exit; or

(b) the Council is of opinion that by reason of the design of the building, the potential fire hazards associated with the use of the building, or other relevant considerations necessitate the provision of two exits from that storey.

(3) In a Class VI, VII, or VIII building having a rise of two storeys in which the upper storey has a floor area exceeding 180 m², at least two exits from that storey shall be provided.

(4) In a Class VI, VII, or VIII building having a rise of more than two storeys at least two exits shall be provided.
Ordinance No. 70—Local Government Act, 1919

Concession: building up to eight storeys.

(5) Notwithstanding the requirements of subclauses (3) and (4), in a Class VI, VII or VIII building having a rise of not more than eight storeys the Council may approve one exit only if—

(a) the requirements of subclause (1) of clause 24.43 are met; and

(b) a certificate from the Board of Fire Commissioners is submitted to the Council certifying that having regard to the proposed use of the building a single exit will be sufficient.

(6) Where egress from a storey in a Class VI, VII, or VIII building would involve a vertical rise within the building of more than 1.5 m, at least two exits shall be provided from that storey.

24.43. (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, except as conceded in subclause (3).

(2) Where two or more exits are provided, no point on a floor shall be more than 18 m from—

(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 maximum distance to one of those exits shall not exceed 40 m.

(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.

(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
Ordinance No. 70—Local Government Act, 1919.

(b) a point from which travel in different directions to two exits is available.

24.44. (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.

(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.

24.45. (1) In this clause, the “nearest part of a required exit” shall have the meaning ascribed to “nearest part of an exit” by subclause (1) of clause 24.34.

(2) In measuring the distances referred to in clauses 24.43 and 24.44, the following rules shall apply:

(a) In the case of a room, the distance shall include the straight-line measurement from any point on the floor 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), (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.

24.46. 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.

24.47. (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 1 980 mm in height and not less than 760 mm in width, this width to be increased, where necessary, to comply with subclause (2) or subclause (3) as the case may be.
(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—

(a) the width of a doorway serving as the only exit from that storey; and

(b) the sum of the 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.

(3) Where, pursuant to clause 24.49, a stairway or Leading to ramp is required to be more than 1 020 mm in width at any level, Leading to the following doorways leading to or from the stairway or Leading to ramp or Leading to stairway shall have the minimum widths listed:

(a) A doorway providing direct access from a storey—Leading to 255 mm less than the required width of the stairway or Leadin...ramp at that storey level.

(b) A doorway providing direct access from the stairway or Leadin...ramp at the level of access to a road or open space—Leading to 255 mm less than the required width of the stairway or Leadin...ramp at that level.

24.48. Every path of travel to a required exit shall, except for Dimensions of paths doorways, have a minimum unobstructed vertical clearance of travel. throughout of 2 030 mm and a minimum unobstructed width throughout of 1 020 mm.

24.49. (1) Every required exit shall, except for doorways, have Dimensions of exits. a minimum unobstructed vertical clearance throughout of Vertical clearance. 2 030 mm.

(2) Every required exit shall, except for doorways, have Minimum widths. a minimum unobstructed width throughout of 1 020 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 24.28, 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 24.49, 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 2 040 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.

**TABLE 24.49.**

<table>
<thead>
<tr>
<th>Number of persons accommodated according to clause 24.28</th>
<th>Aggregate width</th>
</tr>
</thead>
<tbody>
<tr>
<td>Exceeding 100</td>
<td>mm</td>
</tr>
<tr>
<td>100</td>
<td>1 020</td>
</tr>
<tr>
<td>125</td>
<td>1 275</td>
</tr>
<tr>
<td>150</td>
<td>1 530</td>
</tr>
<tr>
<td>175</td>
<td>1 785</td>
</tr>
<tr>
<td>200</td>
<td>2 040</td>
</tr>
</tbody>
</table>

**Division 5.—Class IX Buildings.**

24.50. This Division, in addition to Division 1 and Division 2, shall apply to Class IX buildings.
24.51. The means of egress from a Class IXa building or from a school shall be as determined by the Council after consideration of—

(a) a report by the Board of Fire Commissioners as to the suitability or otherwise of the means of egress proposed; and

(b) any conditions regarding such means of egress that may be recommended by that Board.

24.52. (1) This clause shall apply to Class IXb buildings except—

(a) schools; and

(b) buildings that are subject to the Theatres and Public Halls Act, 1908.

(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 m² or more,

shall be provided with two egress doorways.

(3) If the room referred to in subclause (2) is situated in the third or higher storey, that storey shall be served by two fire-isolated stairways.
(4) The doorways referred to in subclause (2) shall have a minimum aggregate width calculated in the proportion of 510 mm for every 55 m² of floor area in the room and no doorway shall be less than 1 020 mm in width.

(5) Every path of travel from a room referred to in subclause (2) to a required stairway shall except for doorways have a minimum unobstructed vertical clearance throughout of 2 040 mm and a minimum unobstructed width throughout of 1 020 mm.

(6) Every required stairway shall have a minimum unobstructed width throughout of 1 020 mm and this width shall be increased, where necessary, to meet the provisions of subclause (7).

(7) Where, pursuant to clause 24.28, a storey containing a room referred to in subclause (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 2 040 mm plus 255 mm for every 25 persons (or part of 25 persons) in excess of 200.

(8) All doors fitted to egress doorways in a room referred to in subclause (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 24.52.

WIDTH OF STAIRWAYS ACCORDING TO NUMBER OF PERSONS ACCOMMODATED IN A STOREY.

<table>
<thead>
<tr>
<th>Number of persons accommodated according to clause 24.28</th>
<th>Aggregate width</th>
</tr>
</thead>
<tbody>
<tr>
<td>Exceeding</td>
<td>Not exceeding</td>
</tr>
<tr>
<td>100</td>
<td>100</td>
</tr>
<tr>
<td>125</td>
<td>125</td>
</tr>
<tr>
<td>150</td>
<td>150</td>
</tr>
<tr>
<td>175</td>
<td>175</td>
</tr>
<tr>
<td></td>
<td>200</td>
</tr>
</tbody>
</table>

GROUP V.—FIRE SAFETY AND FIRE RESISTANCE.

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. * * * * *

25.3. 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 1691 “SAA Domestic Oil-fired Appliances Installation Code”.
25.4. A solid-fuel-burning appliance shall be provided with a flue and the appliance, together with its flue and other associated fittings, shall be installed in accordance with the following conditions:

(a) Where any external surface of an appliance is capable, under extreme operating conditions, of attaining a temperature that is within a range specified in Column 1 of Table 25.4, the appliance shall, subject to paragraphs (b) and (f), be installed in such a manner that the surface shall be at a distance from any nearby combustible material of not less than the distance specified opposite the range in Column 2 of that Table.

(b) The Council may permit an appliance to be installed in such a manner that an external surface thereof is at a distance from nearby combustible material of less than the distance calculated in accordance with paragraph (a) in respect of the surface if it is satisfied that the combustible material is protected by sufficient non-combustible heat insulation to ensure that the appliance, under extreme operating conditions, is not capable of causing that material to attain a temperature of more than 70° C.

(c) For the purposes of paragraph (a), an external surface of an appliance shall, unless it is proved otherwise, be deemed to be capable, under extreme operating conditions, of attaining a temperature of more than 150° C.

(d) Where an appliance is installed within a fireplace—

(i) the walls of the fireplace shall be of concrete or masonry;

(ii) the floor or hearth of the fireplace shall be of stone, concrete, masonry, or similar non-combustible material; and

(iii) the floor or hearth shall extend 150 mm beyond the fireplace opening at each side and 300 mm beyond the face of the fireplace opening.
(e) Where an appliance is not installed within a fireplace it shall be provided with a hearth of stone, concrete, masonry, or similar non-combustible material extending—

(i) 300 mm beyond the limits of the appliance; or

(ii) such lesser distance beyond the limits of the appliance as the Council may approve where it is satisfied that a lesser distance should be permitted because of the design of the appliance.

(f) An appliance shall not be located where it is, in the opinion of the Council, likely to cause an outbreak of fire in the building or structure in which it is installed.

(g) A flue that is connected to an appliance shall comply with section 6 of Australian Standard 1691 “SAA Domestic Oil-fired Appliances Installation Code” as though it were a flue connected to an oil heating appliance, except that the flue shall be constructed of cast iron, asbestos-cement not less than 9.5 mm in thickness, or such other material as may be approved by the Council.

<table>
<thead>
<tr>
<th>Surface temperature of appliance in °C.</th>
<th>Distance in mm.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Less than 95° C</td>
<td>150 mm</td>
</tr>
<tr>
<td>95° C–150° C</td>
<td>600 mm</td>
</tr>
<tr>
<td>More than 150° C</td>
<td>900 mm</td>
</tr>
</tbody>
</table>

25.5. A boiler, together with its flue, if any, and other Boilers, associated fittings, shall be installed in accordance with Australian Standard 1200 “SAA Boiler Code”.

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Ordinance No. 70—Local Government Act, 1919.

25.6. (1) Every open fireplace, and every solid-fuel-burning appliance in which the fuel-burning compartment is not enclosed, shall be provided with a hearth.

(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 part of the hearth which is required to extend beyond the appliance, fireplace opening, or the limits of the fireplace, as the case requires.

(3) A required hearth—

(a) shall extend not less than 300 mm beyond the front of the fireplace opening and not less than 150 mm beyond each side of that opening unless, by reason of the design of the fireplace or appliance, the Council approves a variation of this requirement; and

(b) 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 unless, by reason of the design of the fireplace or appliance, the Council approves a variation of this requirement.

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—

(a) gas-burning appliances where such use of the flue is permitted by—

(i) the requirements of the gas supply authority concerned; and
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(ii) any relevant installation requirements prescribed by or under any Act relating to the supply of gas in the area concerned; or

(b) boilers referred to in clause 25.5 where Australian Standard 1200 "SAA Boiler Code" permits otherwise; or

(c) solid fuel or electrical appliances used in the cooking and preparation of food; or

(d) electrical disposal appliances such as incinerettes.

(2) A flue or chimney shall not terminate in such a position as to constitute—

(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 to the chimney outlet.

(4) A chimney or flue shall be so constructed that—

(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.

(5) A flue attached to an appliance referred to in clauses 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 subclause (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 subclause (4):

(a) Up to a height of not less than 300 mm above the underside of the arch or lintel, the walls forming the sides and back of the fireplace shall be constructed in two separate leaves of solid masonry having a total thickness, exclusive of any cavity, of not less than 180 mm.

(b) Concrete masonry shall not be used in the construction of the inner leaf of the masonry referred to in paragraph (a).

(c) The walls of the fireplace and chimney above the height 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.

(7) In the case of a chimney or flue that is not deemed, pursuant to subclause (5) or subclause (6), to comply with subclause (4), the Council may require the production of satisfactory evidence that the chimney or flue concerned will meet the requirements of subclause (4).

(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 15 kW; or

(b) 190 mm in the case of an open fireplace or an appliance having a rating of more than 15 kW but less than 88 kW; or
(9) Where a flue is attached to an appliance referred to in clause 25.3 and the flue and the appliance are installed in accordance with Australian Standard 1691 "SAA Domestic Oil-fired Appliances Installation Code", the flue shall be deemed to comply with subclause (8).

(10) 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. (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.

(2) The chimney or flue of an incinerator, except an incinerator not forming part of a building, shall comply with the relevant provisions of clause 25.7.

(3) A hopper giving access to a charging chute of an incinerator within or forming part of a building shall be non-combustible; and

(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:

(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.—Fire Protection in Class IX Buildings.

GROUP V.—FIRE SAFETY AND FIRE RESISTANCE.

PART 27.—Fire-fighting Services and Appliances.

27.1. Except in so far as the context or subject-matter otherwise indicates or requires, this Part shall apply only to a building completed in accordance with approved plans and specifications.

27.2. (1) Where, pursuant to this Ordinance, hydrants are required to be installed—

(a) within a building;
(b) within the site of but external to the building; or
(c) at the level of the roof,

a fire main shall be provided and every such hydrant shall be connected to that fire main.
Ordinance No. 70—Local Government Act 1919.

(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. For fire-fighting purposes only.

(3) A fire main shall be so designed that—

(a) a water pressure of not less than 275 kPa through a 16-mm nozzle at the most hydraulically disadvantaged hydrant in the system shall be available; and Water pressures and flow rates.

(b) a water flow rate capacity shall be not less than the flow rates for the classes of building indicated in Table 27.2.

(b) a water flow rate capacity shall be not less than the flow rates for the classes of building indicated in Table 27.2.

TABLE 27.2.

<table>
<thead>
<tr>
<th>Class of building</th>
<th>Flow rate (litres per second)</th>
</tr>
</thead>
<tbody>
<tr>
<td>II, III and V buildings having a rise in storeys of not more than eight</td>
<td>11</td>
</tr>
<tr>
<td>II, III and V buildings having a rise in storeys of more than eight</td>
<td>22</td>
</tr>
<tr>
<td>VI, VII and VIII buildings where more than two hydrants are required to be provided in accordance with clause 27.4</td>
<td>22</td>
</tr>
<tr>
<td>VI, VII and VIII buildings where not more than two hydrants are required to be provided in accordance with clause 27.4</td>
<td>15</td>
</tr>
</tbody>
</table>

(4) The applicant shall submit to the Council a certificate obtained from the Board of Fire Commissioners to the effect that—

(a) in its opinion, any required fire main complies with the requirements of subclauses (2) and (3); and Certification of design, etc.

(b) all hydrants are accessible and suitable for use in conjunction with the fire hoses of the fire brigade serving the locality.

(5) A fire brigade booster connection shall be provided to a fire main and the inlet shall be—

(a) in a location approved by the Council, that is acceptable to the Board of Fire Commissioners; and

Fire brigade booster connection
Ordinance No. 70—Local Government Act, 1919.

(b) suitable for use with the equipment of the fire brigade serving the locality.

Exemption from provision of booster.

(6) An exemption from subclause (5) may be granted by the Council where, in the opinion of the Board of Fire Commissioners, such exemption is warranted.

Hose reels. Required in certain buildings.

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.

<table>
<thead>
<tr>
<th>Class of building</th>
<th>Storeys in which hose reels are required</th>
</tr>
</thead>
<tbody>
<tr>
<td>II</td>
<td>Every storey if the rise in storeys of the building includes more than three storeys of flats.</td>
</tr>
<tr>
<td>III</td>
<td>Every storey if the rise in storeys of the building includes more than two residential storeys.</td>
</tr>
<tr>
<td>V, VI, VII, VIII</td>
<td>(a) Every storey exceeding 500 m² in floor area, irrespective of the rise in storeys. (b) Every storey if building has a rise of more than four storeys.</td>
</tr>
</tbody>
</table>

Location of hose reels.

(2) In those storeys of a building in which hose reels are required pursuant to subclause (1)—

(a) no point on the floor of the storey shall be beyond the reach of the nozzle end of a fully extended hose reel installed within the storey;

(b) each hose reel shall be accessible at all times to all occupants of those portions of the storey served by it; and

(c) no hose reel shall be installed in a fire-isolated stairway, fire-isolated passageway or fire-isolated ramp.
Every required hose reel shall—

(a) comply with Australian Standard 1221 “Fire Hose Reels”;

(b) be installed in accordance with the relevant provisions of Australian Standard 1851 “Installation and Maintenance of Portable Fire Extinguishers and Fire Hose Reels”; and

(c) be connected to a water service pipe, which shall be so designed that the water pressure at the nozzle end, when fully extended, shall be not less than 200 kPa, except where abnormal conditions affect the water supply to which the water service pipe is connected.

The Council may exempt a building from the provisions of this clause if—

(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.

The applicant shall submit to the Council a certificate obtained from the Board of Fire Commissioners to the effect that, in its opinion, the provision of any required hose reel complies with the requirements of subclause (3) (c).

27.4. (1) One or more hydrants shall be provided at the level of every storey in the following buildings:

(a) Class II, III, V, VI, VII and VIII buildings having a rise of more than four storeys, irrespective of floor area.

(b) Class VI, VII, and VIII 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.
Ordinance No. 70—Local Government Act, 1919.

**TABLE 27.4.**

*Hydrants in buildings of certain floor area.*

(To be installed where total floor area exceeds figure listed in second column.)

<table>
<thead>
<tr>
<th>Class of building</th>
<th>Floor area figure (square metres)</th>
</tr>
</thead>
<tbody>
<tr>
<td>VI</td>
<td>2 000</td>
</tr>
<tr>
<td>VII</td>
<td>2 000, 2 800</td>
</tr>
<tr>
<td>(a) For storage or display of goods referred to in Second Schedule</td>
<td></td>
</tr>
<tr>
<td>(b) Other cases</td>
<td></td>
</tr>
<tr>
<td>VIIIа</td>
<td>2 800</td>
</tr>
<tr>
<td>VIIIб</td>
<td>2 000</td>
</tr>
</tbody>
</table>

(2) In the buildings referred to in subclause (1), no point on the floor of a storey shall be outside a radius of 36 m from a hydrant installed within that storey.

(3) In a building having a rise of more than six storeys, in addition to complying with subclause (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,

and shall be so located that no point on the roof shall be outside a radius of 36 m from a hydrant.

(4) In a Class VI, VII, or VIII building that is not required, pursuant to subclause (1), to be provided with internal hydrants and in which the total floor area exceeds 500 m², no point on any floor of the building shall be more than 90 m from a hydrant situated—

(a) in the road to which the site has frontage; or

(b) in the building; or

(c) within the site but external to the building.
Ordinance No. 70—Local Government Act, 1919.

(5) Where, pursuant to this clause—

(a) hydrants are required to be installed within a building;

and

(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 Council after consultation with the Board of Fire Commissioners.

(6) For the purposes of subclauses (4) and (5), the distance of any point on a floor of a building from a hydrant shall be measured as follows:

(a) In a straight line between the hydrant and the point concerned if the point is in a storey providing direct access to the hydrant; 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 point concerned.

(7) Every required hydrant shall be—

(a) suitable for the connection of the fire hoses of the fire brigade serving the locality; and
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(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.

(8) The Council may grant exemption from the provisions of this clause if—

(a) a public water supply is not available; and
(b) any other sufficient 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 and subject to compliance with any alternative requirements recommended by the Board.

Provision for special hazards. Reference to fire authorities.

27.7. (1) Where the Council is of opinion that in a particular proposed Class VII or Class VIII building, special problems of fighting fire could arise because of the nature or quantity of materials stored or displayed, or used in a handicraft or process, it shall refer the proposal to the Board of Fire Commissioners for report.

(2) After consideration of a report by the Board of Fire Commissioners pursuant to subclause (1), the Council shall impose such special requirements to facilitate the fighting of fire as it considers desirable in the particular case.
Ordinance No. 70—Local Government Act, 1919.

Group VI.—Structural Provisions.

Part 28.—Materials.

28.1. Where any material listed in Column 1 of Table 28.1 complies with the provisions of the standard or specification indicated in respect of the material in Column 2 of the Table opposite that material so listed, the material shall not be considered faulty for the purposes of clause 10.2 (1) (a).

Table 28.1.

<table>
<thead>
<tr>
<th>Material</th>
<th>Standard or specification</th>
</tr>
</thead>
<tbody>
<tr>
<td>Blocks—concrete</td>
<td>Australian Standard 1500 “Concrete Building Blocks”</td>
</tr>
<tr>
<td>Bricks—burnt clay and shale</td>
<td>Specification No. 4 “Burnt Clay and Shale Building Bricks”, as approved by the Minister and published in the Gazette.</td>
</tr>
<tr>
<td>Bricks—calcium silicate</td>
<td>Australian Standard 1653 “Calcium Silicate Bricks”</td>
</tr>
<tr>
<td>Bricks—concrete</td>
<td>Australian Standard 1346 “Concrete Building Bricks”</td>
</tr>
<tr>
<td>Concrete—plain</td>
<td>Australian Standard 1480 “SAA Concrete Structures Code”</td>
</tr>
<tr>
<td>Concrete—prestressed</td>
<td>Australian Standard 1481 “SAA Prestressed Concrete Code”</td>
</tr>
<tr>
<td>Concrete—reinforced</td>
<td>Australian Standard 1480 “SAA Concrete Structures Code”</td>
</tr>
<tr>
<td>Mortar—masonry (other)</td>
<td>Australian Standard A123 “Mortar for Masonry Construction”</td>
</tr>
<tr>
<td>Particleboard flooring</td>
<td>Australian Standard 1859 “Flat Pressed Particleboard”</td>
</tr>
</tbody>
</table>

28.2—28.7. * * * *

28.8. Where it is proposed to use for structural purposes in a Other materials building any material not provided for in this Ordinance, the Council may call for the submission (in a form prescribed by clause 10.3 (2) ) of satisfactory evidence to show that the use of the material is not prohibited by clause 10.2 (1).
29.1. The working stresses, deflections and load factors used for materials or forms of construction for which specific provision is not made in this Ordinance shall be subject to the approval of the Council.

GROUP VI.—STRUCTURAL PROVISIONS.

PART 30.—Design for Dead and Other Loads.

30.1. (1) Except as permitted by subclause (2), 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”.

(2) The Council may exempt from any provision of this Ordinance relating to structural design for dead or other loads, any structural member in a portion of a building containing not more than three storeys which it is satisfied, by reasons of experience or knowledge of local or traditional building construction practices, is likely to be structurally sound.

(3) Without in any way limiting the generality of subclause (2), the Council may exercise the discretion to exempt conferred by that subclause in the following cases:

(a) Buildings constructed in accordance with Australian Standard 1684 “SAA Timber Framing Code”.

(b) Buildings constructed of masonry veneer in accordance with Australian Standard 1684 “SAA Timber Framing Code” and having the outer masonry veneer—

(i) laid up conventionally, using stretcher, English or Flemish bond; and
Ordinance No. 70—Local Government Act, 1919.

(ii) of height not exceeding 7.2 m, excluding any gable, measured from the top of the support prescribed in subclause (4) to the highest point at which the wall abuts the ceiling of the topmost storey, or the level of the bottom of the wall plate, whichever is the lower.

(c) Buildings constructed of masonry having walls of height not exceeding 10 m, excluding any gable, measured from the top of the support prescribed in subclause (4) to the highest point at which the wall abuts the ceiling of the topmost storey, or the level of the bottom of the wall plate, whichever is the lower.

(4) The masonry referred to in paragraphs (b) and (c) of subclause (3) shall comply with the requirements of Parts 28 and 36 and shall be erected with its base course supported on solid rock or on footings of concrete, brickwork, masonry or the like.

30.2. Where a building is erected in an area which is subject to seismic activity it shall be designed in accordance with the requirements of the Council that relate to that activity.

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.

(2) All excavations shall be properly guarded and protected to prevent them from being dangerous to life or property.

31.2. The Council may require water to be removed or diverted from excavations before, during, or after concrete or other building materials are deposited therein.
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.

31.4. (1) Where an excavation extends below the level of the base of the footings of a building on an adjoining allotment of land, the person causing the excavation to be made shall, at his own expense—
   (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 subclause (1) to be made shall, seven days before excavating below the level of the base 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.

GROUP VI.—STRUCTURAL PROVISIONS.

PART 32.—FOUNDATIONS.

32.1. The adequacy of foundations shall be assessed on the basis of—
   (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. Foundations shall be treated or excavations taken to the depths necessary to provide adequate support to the loads superimposed by the building.

32.3. (1) The bearing pressures on the foundation of a building shall not exceed the values given in Table 32.3 unless a foundation investigation has been carried out by a person or body approved by the Council, and the Council is satisfied, in the light of the report on that investigation, that higher bearing pressures are justified.
**Ordinance No. 70—Local Government Act, 1919.**

**TABLE 32.3.**

<table>
<thead>
<tr>
<th>Foundation</th>
<th>Allowable bearing pressures in kilopascals</th>
</tr>
</thead>
<tbody>
<tr>
<td>Made ground</td>
<td>0–300</td>
</tr>
<tr>
<td>Soft clay or loam</td>
<td>100</td>
</tr>
<tr>
<td>Confined wet sand</td>
<td>150</td>
</tr>
<tr>
<td>Medium clay or sandy clay</td>
<td>200</td>
</tr>
<tr>
<td>Hard dry clay or dense sand</td>
<td>300</td>
</tr>
<tr>
<td>Soft shale</td>
<td>400</td>
</tr>
<tr>
<td>Weathered rock or medium shale</td>
<td>600</td>
</tr>
<tr>
<td>Shale rock at 600 mm from the boundary</td>
<td>1 000</td>
</tr>
<tr>
<td>Shale rock at the boundary</td>
<td>650</td>
</tr>
<tr>
<td>Soft sandstone, free of defects to a depth of 450 mm and with a total seam thickness not exceeding 20 mm for the next 450 mm of depth, where the footing is 900 mm or more from the boundary</td>
<td>1 300</td>
</tr>
<tr>
<td>Soft sandstone, free of defects to a depth of 450 mm and with a total seam thickness not exceeding 20 mm for the next 450 mm of depth, where the footing is at the boundary</td>
<td>850</td>
</tr>
<tr>
<td>Medium sandstone, free of defects to a depth of 600 mm and with a total seam thickness not exceeding 20 mm for the next 600 mm of depth, where the footing is 1 200 mm or more from the boundary</td>
<td>2 100</td>
</tr>
<tr>
<td>Medium sandstone, free of defects to a depth of 600 mm and with a total seam thickness not exceeding 20 mm for the next 600 mm of depth, where the footing is at the boundary</td>
<td>1 400</td>
</tr>
<tr>
<td>Hard sandstone, free from defects to a depth of 900 mm and with a total seam thickness not exceeding 20 mm for the next 900 mm of depth, where the footing is 1 800 mm or more from the boundary</td>
<td>3 200</td>
</tr>
<tr>
<td>Hard sandstone, free from defects to a depth of 900 mm and with a total seam thickness not exceeding 20 mm for the next 900 mm of depth, where the footing is at the boundary</td>
<td>2 100</td>
</tr>
<tr>
<td>Hard igneous rock free from gas holes</td>
<td>4 300</td>
</tr>
<tr>
<td>Massive crystalline bed rock</td>
<td>8 300</td>
</tr>
</tbody>
</table>
(2) Where it is proposed to exceed a bearing pressure of 50 kPa on a foundation of made ground the Council may require evidence from a practising structural engineer approved by the Council that the foundation is adequate to support the loads to be superimposed by the building.

(3) Where it is proposed to erect the footings of a building between the boundary and—

(a) a point 600 mm from the boundary in the case of a foundation of shale rock; or

(b) a point 900 mm from the boundary in the case of a foundation of soft sandstone; or

(c) a point 1200 mm from the boundary in the case of a foundation of medium sandstone; or

(d) a point 1800 mm from the boundary in the case of a foundation of hard sandstone,

the allowable bearing pressures shall be determined by simple interpolation.

(4) Notwithstanding anything to the contrary in this clause, where a foundation consists of highly swelling soil, collapsing sand or other unstable material, the Council may require special procedures to be used in the design and construction of the footings of the building.

(5) Notwithstanding anything to the contrary in this clause, if the Council has reason to believe that in respect of a particular site the figures—

(a) quoted in Table 32.3; or

(b) determined pursuant to subclause (3) of this clause, are excessive, it may require that the foundation be tested to determine the allowable bearing pressure.
Ordinance No. 70—Local Government Act, 1919.

Group VI.—Structural Provisions.

Part 33.—Footings Not on Piling or Caissons.

33.1. Suitable footings shall be provided where necessary to Provision of footings. reduce the intensity of the pressure of the building on the foundations.

33.2. Footings, including slab-on-ground footings, shall be Design of footings. designed and constructed so that any relative movements of separate footings and of different parts of any one footing under loading, or of a footing and any other element of the substructure will not impair the stability of or cause significant structural damage to the superstructure.

33.3. (1) In a Class I building, or a Class X building appurtenant to 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;
(b) the design of the building; or
(c) any other relevant considerations,

the Council is of opinion that such footings would not be adequate in the particular case.

(2) For the purposes of Part I of Table 33.3 (5) the Measurement of height of walls. height of the wall shall be measured from the top of the strip footing to the top of the masonry component of the wall disregarding the gable, if any.

(3) Concrete used in footings constructed according to Concrete strength. 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 Concrete Structures Code”.
(4) Steel reinforcement in footings, where required by this clause shall comply with the following:—

(a) (i) steel bars shall comply with Australian Standard 1302 “Steel Reinforcing Bars for Concrete”; or

(ii) steel reinforcing fabric shall comply with the requirements for either Mesh Ref. No. F 818 or Trench Mesh Ref. No. F 8TM as provided in Australian Standard 1304 “Hard-drawn Steel Wire Reinforcing Fabric for Concrete”; and

(b) .................................................................

(c) reinforcement in footings shall—

(i) be equally distributed in two layers, one near the top and one near the bottom of the footings;

(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; and

(C) at steppings, as shown in Figure 33.3; and

(iv) be securely tied to 6 mm diameter steel spacers positioned at not more than 1 200 mm centres.

(5) Strip footings constructed of reinforced concrete shall—

(a) have a width and depth according to Part I of Table 33.3 (5); and

(b) if stepping is necessary, comply with one or more of the methods shown in Figure 33.3 and have level bottoms between steppings; and
(c) be reinforced according to Part II of Table 33.3 (5) and Figure 33.3.

**TABLE 33.3 (5). PART I—CROSS-SECTIONAL DIMENSIONS OF REINFORCED CONCRETE STRIP FOOTINGS.**

<table>
<thead>
<tr>
<th>Construction</th>
<th>Nominal thickness of masonry component of wall to be supported— not more than</th>
<th>Size of concrete (width x depth in mm)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Masonry, one storey building, height of the wall (according to subclause (2)) not exceeding 4 200 mm excluding any gable</td>
<td>mm</td>
<td>450 x 250</td>
</tr>
<tr>
<td>Masonry veneer, one storey building, height of the wall (according to subclause (2)) not exceeding 4 200 mm excluding any gable Masonry veneer, two storey building, height of the wall (according to subclause (2)) not exceeding 7 200 mm excluding any gable Frame construction (timber or metal studs), one storey building—for foundation wall not exceeding 1 500 mm high, measured from the top of the strip footing Frame construction (timber or metal studs), two storey building—for foundation wall not exceeding 1 500 mm high measured from the top of the strip footing</td>
<td>270</td>
<td>300 x 250</td>
</tr>
<tr>
<td></td>
<td>110</td>
<td>300 x 250</td>
</tr>
<tr>
<td></td>
<td>110</td>
<td>380 x 250</td>
</tr>
<tr>
<td></td>
<td>110</td>
<td>230 x 150</td>
</tr>
<tr>
<td></td>
<td>110</td>
<td>300 x 250</td>
</tr>
</tbody>
</table>

**PART II—REINFORCEMENT FOR STRIP FOOTINGS.**

<table>
<thead>
<tr>
<th>Width of strip footing (mm)</th>
<th>Minimum number of main wires per layer using Ref. No. F 818 or Ref. No. F 8TM fabric</th>
<th>Minimum number of 10 mm diameter bars per layer</th>
<th>Minimum number of 12 mm diameter bars per layer</th>
</tr>
</thead>
<tbody>
<tr>
<td>230</td>
<td>2</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>300</td>
<td>3</td>
<td>3</td>
<td>2</td>
</tr>
<tr>
<td>380</td>
<td>3</td>
<td>3</td>
<td>2</td>
</tr>
<tr>
<td>450</td>
<td>4</td>
<td>5</td>
<td>3</td>
</tr>
</tbody>
</table>
(6) Brick or concrete block freestanding piers shall have brick, concrete block or concrete footings—

(a) not less than 150 mm in depth; and

(b) projecting not less than 50 mm beyond each face of the piers.

(7) Brick footings shall comply with the following:—

(a) the bottom of every footing shall project on each side of the wall which it supports by a distance of not less than one-half the thickness of such wall at its base;

(b) such projection may be omitted—

(i) where an adjoining wall interferes with the projection; or

(ii) where the wall which the footing is to support is to be erected adjoining the boundary of the land and the projection would otherwise encroach upon adjoining land;

(c) any diminution of a footing shall be in regular offsets; and

(d) the distance from the bottom of the footing to the base of the wall supported shall be—

(i) not less than two-thirds the thickness of such wall at its base; and

(ii) not less than 225 mm in any case.
Where stepping "S" is not more than 100 mm, length "L" shall be not less than 600 mm

METHOD A

METHOD B

Where stepping "S" is more than 100 mm
(a) stepping "S" shall be not more than 600 mm
(b) length "L" shall be not less than 600 mm and
(c) reinforcement shall be arranged as shown in Method B, C or D

METHOD C

METHOD D

FIGURE 33.3
Ordinance No. 70—Local Government Act, 1919.

GROUP VI.—STRUCTURAL PROVISIONS.

PART 34.—Piling and Caissons.

34.1. This Part shall not apply to piers or stumps used as a substructure above ground level in which such piers or stumps are designed to transmit the loads of the superstructure to the footings or foundation.

34.2. Substructures wholly or partly of piling or caissons shall be so designed and constructed that any relative movements of the substructure or of separate parts of the substructure will not impair the stability of or cause significant structural damage to the superstructure.

34.3. (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.

(2) *

34.4. Piles designed and installed in accordance with the relevant provisions of Australian Standard 2159 “SAA Piling Code” shall be deemed to satisfy the requirements of this Part.

GROUP VI.—STRUCTURAL PROVISIONS.

PART 35.—Walls—General Requirements.

35.1. (1) For the purposes of this clause “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.
(2) This clause shall apply to every building of load-bearing wall construction in which the level of the floor of the topmost storey is more than 11 m above the lowest level of the finished ground adjacent to the building.

(3) Every building to which this clause applies shall comply with one of the following alternative rules:

(a) The building shall be provided with horizontal continuity at every floor level by means of—

(i) a concrete floor cast in situ capable of resisting all the negative bending moments specified for such a floor by Australian Standard 1480 “SAA Concrete Structures Code”; or

(ii) a floor comprising precast concrete units connected in such a manner as to be capable of resisting all the negative bending moments specified by Australian Standard 1480 “SAA Concrete Structures Code” for a reinforced concrete floor cast in situ.

(b) The building shall be so constructed that the floors, together with the loadbearing walls, shall be capable of resisting bending moments which are equivalent, in their effect, to the negative bending moments specified by Australian Standard 1480 “SAA Concrete Structures Code” for a reinforced concrete floor cast in situ.

(c) The building shall be so constructed that if any part of a loadbearing wall, 6 m in length and not exceeding in height the height of the storey in which it is located, is removed or displaced from any cause whatsoever, the stresses developed in the remaining parts of the wall shall not exceed normal working stresses by more than 25 per cent and the remaining structural parts of the building shall be held in place.

(4) If the Council is not otherwise able to satisfy itself that a building, to which this clause applies, complies with one of the alternative rules referred to in subclause (3) of this clause, it may require the submission of a certificate by a practising structural engineer approved by the Council, that the proposed building will so comply.
36.1. (1) For the purposes of this Part the combined thickness of the inner and outer leaves of a cavity wall shall be deemed to be the thickness of the wall.

(2) The external walls of a building, if of masonry construction, shall be designed and constructed in accordance with the relevant provisions of this Part and shall be not less than 200 mm in thickness except—

(a) in the case of Clause VII or VIII buildings where the Council permits the use of external walls having a thickness of less than 200 mm; or

(b) in the case of single storey buildings or the topmost storey of multi-storey buildings where cavity wall construction is used and the combined thickness of the inner and outer leaves is not less than 190 mm; or

(c) in the case of Class X buildings or of garages, laundries, tool sheds, privy closets and the like forming portion of a building used for other purposes.

(3) The Council may require a certificate from a practising structural engineer approved by the Council as to the structural adequacy of any wall less than 200 mm in thickness if—

(a) the wall exceeds 3 m in height; or

(b) the Council is unable for any reason to satisfy itself that the wall will be structurally adequate.

36.2. (1) Masonry of—

(a) burnt clay and shale bricks;

(b) calcium silicate bricks; and
(c) concrete bricks,

shall be designed and erected in accordance with Australian Standard 1640 “SAA Brickwork Code”.

(2) In addition to the requirements of subclause (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 strength of the bricks exceeds 48 MPa the design calculations shall be based on a maximum figure of 48 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 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 MPa.

(ii) Compressive strength exceeding 24 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) The Council may require the submission of 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.

(3) For the purposes of this clause the following provisions of Australian Standard 1640 “SAA Brickwork Code” shall not apply:

(a) The definition of “Clay brick” in rule 1.4;

(b) Rule 2.1.2.—Clay Bricks;