

SCHEDULES
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TABLES

TABLE 1—CLASSIFIATION OF OCCUPANCY IN BUILDINGS

(p. 17(5)(6), 42, 119, 141(24), 151, 164(1), 201(2), 203(10), 204(1)(2)(4), 362, 364(1), 368(2)(5), 369(6), 371(2)(4), 374, 383(2)(3), 384(3), 384(2), 386(6), 387, 388(1)(2), 390(1), 391(9), 392(1), 393(4), 394(3), 396(3)(4), 400(1), 401(11), 403(1), 406(6), 407(4)(5), 408(1)(3)(4), 410(2), 412(2)(6), 414(5), 419(1), 424(3), 429)

CLASS OF BUILDING	OCCUPANCY OF BUILDING
A1	<i>Entertainment and Public Assembly</i> Occupancy where persons gather to eat, drink, dance or participation other recreation.
A2	<i>Theatrical and Indoor Sport</i> Occupancy where persons gather for the viewing of theatrical, operatic, orchestral, choral, cinematography or sport performance.
A3	<i>Places of Instruction</i> Occupancy where school children, students or other persons assemble for the purpose of tuition or learning.
A4	<i>Worship</i> Occupancy where persons assemble for the purpose of worshipping
A5	<i>Outdoor Sport</i> Occupancy where persons view outdoor sports events.
B1	<i>High risk commercial service</i> Occupancy where a non-industrial process is carried out and where either the material handled or the process carried out is liable, in the event of fire, to cause combustion with extreme rapidity or give rise to poisonous fumes, or cause explosions.
B2	<i>Moderate risk commercial service</i> Occupancy where a non-industrial process is carried out and where either the material handled or the process carried out is liable, in the event of fire, to cause combustion with moderate rapidity but is not likely to give rise to poisonous fumes, or cause explosions.
B3	<i>Low risk commercial service</i> Occupancy where a non-industrial process is carried out and where neither the material handled nor the process carried out falls into the high or moderate risk category.
C1	<i>Exhibition hall</i> Occupancy where goods are displayed primarily for viewing by the public.
C2	<i>Museum</i> Occupancy comprising a museum, art gallery or library.

D1	<p><i>High risk industrial</i></p> <p>Occupancy where an industrial process is carried out and where either the material handled or the process carried out is liable, in the event of fire, to cause combustion with extreme rapidity or give rise to poisonous fumes, or cause explosions.</p>
D2	<p><i>Moderate risk industrial</i></p> <p>Occupancy where an industrial process is carried out and where either the material handled or the process carried out is liable, in the event of fire, to cause combustion with moderate rapidity but is not likely to give rise to poisonous fumes, or cause explosions.</p>
D3	<p><i>Low risk industrial</i></p> <p>Occupancy where an industrial process is carried out and where neither the material handled nor the process carried out falls into the high or moderate risk category.</p>
D4	<p><i>Plant room</i></p> <p>Occupancy comprising usually unattended mechanical or electrical services necessary for the running of a building.</p>
E1	<p><i>Place of detention</i></p> <p>Occupancy where people are detained for punitive or corrective reasons or because of their mental condition.</p>
E2	<p><i>Hospital</i></p> <p>Occupancy where people are cared for or treated because of physical or mental disabilities and where they are generally bed-ridden.</p>
E3	<p><i>Other institutional (residential)</i></p> <p>Occupancy where groups of people who either are not fully fit, or who are restricted in their movements or their ability to make decisions, reside and are cared for.</p>
F1	<p><i>Large shop</i></p> <p>Occupancy where merchandise is displayed and offered for sale to the public and the floor area exceeds 250m².</p>
F2	<p><i>Small shop</i></p> <p>Occupancy where merchandise is displayed and offered for sale to the public and the floor area does not exceed 250m².</p>
F3	<p><i>Wholesaler's store</i></p> <p>Occupancy where goods are displayed and stored and where only a limited selected group of persons is present at any one time.</p>
F4	<p><i>Building of the warehouse class</i></p> <p>A building designed or lawfully used as a warehouse, go-down or factory, or for carrying on a wholesale business, but does not include any living accommodation which may form part of or be annexed to such building, and the formation of an access to a construction site.</p>

G1	<i>Offices</i> Occupancy comprising offices, banks, consulting rooms and other similar usage.
H1	<i>Hotel</i> Occupancy where persons rent furnished rooms, not being dwelling unit.
H2	<i>Dormitory</i> Occupancy where groups of people are accommodated in one room.
H3	<i>Domestic residence</i> Occupancy consisting of at least two dwelling units on one construction site.
H4	<i>Dwelling house</i> Occupancy consisting of a dwelling unit on one construction site, including a garage and other domestic outbuildings, if any.
J1	<i>High risk storage</i> Occupancy where material is stored and where the stored material is liable, in the event of fire, to cause combustion with extreme rapidity or give rise to poisonous fumes, or cause explosions.
J2	<i>Moderate risk storage</i> Occupancy where material is stored and where the stored material is liable, in the event of fire, to cause combustion with moderate rapidity but is not likely to give rise to poisonous fumes, or cause explosions.
J3	<i>Low risk storage</i> Occupancy where the material does not fall into the high or moderate risk category.
J4	<i>Parking garage</i> Occupancy used for storing or parking of more than 10 motor vehicles

TABLE 2—GARAGE SPACES

(p. 35)

<i>Class of Building</i>	<i>Garage spaces per 100m² of gross built area</i>
A3, B1, B2, B3, C1, C2, D1, D2, D3, E1, E3, F3, H3, H4	1 (one)
A2, A5, E2, F1, F2,	2
A1, A4, G1, H1	2.5

TABLE 3—LORRY PARKING AND LOADING BAYS

(p. 46(c))

<i>X</i> draw forward	<i>Y</i> centres	<i>W</i> o/a width	<i>L</i> o/a length for 5	Area per vehicle (sq.)	<i>X</i> draw forward	<i>Y</i> centres		<i>W</i> o/a width	<i>L</i> o/a length for 5	Area per Sq. gross	Vehicle (m.) net
1	5.0	27.4	22.5	123	4	4.	8	18.4	39,5	145	113
2	4.4	28.4	20.1	114	5	4.	5	19.1	37.8	144	111
3	4.0	29.4	18.5	109	6	4.	2	19.8	36.1	144	108
4	3.7	30.4	17.3	105	7	3.	9	20.5	34,4	141	105
5	3.4	31.4	16.1	101	8	3.	6	21.2	32.7	139	101
6	3.0	32.4	14.5	94	9	3.	4	21.9	31.6	138	100
					10	3.	2	22,6	30.5	138	98
Lorry parking and loading bays - head-on; for the					11	3.	1	23.4	29.9	140	99
largest vehicles.					12	3.	0	24.1	29.3	141	99

TABLE 4—ROOF SLOPES AND SHEET END LAPS

(p. 65(2), 241(2))

<i>Class</i>	<i>Roof covering</i> <i>Description</i>	<i>Minimum angle</i> <i>of slope</i> (degrees)	<i>Minimum end lap, mm</i>	
			<i>End laps sealed</i>	<i>End laps not sealed</i>
A	Corrugated metal, plastic or glass-reinforced plastic sheets (including box rib)	5	250	Not permitted
		11	150	250
		15	150	225
		17	150	200
		22	150	150
	Corrugated fibre-cement sheets	11	200	300
		15	175	275
		17	150	250
		22	150	200
		26	150	150
	Long span specialised metal sheets	5	As required by the approving authority	
	Single length long span and specialised sheets	3		
B	Fibre-cement slates (i) with an approved underlay	10		
		17		

<i>Class</i>	<i>Roof covering Description</i>	<i>Minimum angle of slope (degrees)</i>	<i>Minimum end lap, mm</i>	
			<i>End laps sealed</i>	<i>End laps not sealed</i>
	(ii) without an approved underlay			
	Single-lap concrete or clay interlocking tiles; concrete, clay plain tiles or shingles (i) with an approved underlay (ii) without an approved underlay	17 26		
	Natural slate on open battens (i) with an approved underlay (ii) without an approved underlay	20 30		
	Thatch: Thickness of 150mm Thickness of 300mm	45 35		
C	Metal tiles (i) with an approved underlay (ii) without an approved underlay	10 15		

TABLE 5—CLASSIFICATION AND BEARING CAPACITY OF SUB SOILS

(p. 86(1), (5))

<i>Type of Soil</i>	<i>Condition</i>	<i>Max. permissible bearing capacity in kN per square meter</i>
Alluvial	Firm	30
Made up ground: Clay Red Soil	Loose or wet	30
Sand	Wet or badly drained	50
Red Soil	Normal	75
Red Soil	Firm or hard, dry and well drained	100
Coral	Soft vesicular	100

<i>Type of Soil</i>	<i>Condition</i>	<i>Max. permissible bearing capacity in kN per square meter</i>
Sand	Dry, well drained or protected	100 to 150
Murram mixture	Firm and well drained	150
Brown shale	Weathered	150
Gravel Turf, soft Magadi, soft	Compact in layers	200
Brown shale	Un –weathered	200
Coral	Medium hard	200
Murram	Uniform, firm and compact minimum 1.2m thick in layers	300
Murram black Turf Magadi	Firm minimum 1.2m thick	400
Magadi, hard Nairobi soft stone Rock, soft	Monolithic test-bores required	600
Hard Nairobi stone or black-trap	Monolithic test-bores required	600-1000

TABLE 6—PLANNED DIMENSIONS OF A ROOM

(p. 88(3))

<i>Class of Building</i>	<i>Room</i>	<i>Minimum plan area</i>
All classes	Any habitable room other than a kitchen, scullery or laundry	7.0m ² with no linear dimension of less than 2.1 linear metres.
B, D or J	Change rooms and dining rooms	For an occupancy of 1-15, 0.8m ² - 7.0m ² per person For an occupancy of 16 -100, 0.6m ² - 12m ² per person For an occupancy of more than 100, 0.5m ² - 60m ² per person

TABLE 7—ROOM DIMENSIONS

(p. 89(1))

<i>Room or Space</i>	<i>Minimum Height</i>
Bedroom	2.4m over a floor area of at least 7m ² with a clear height of at least 1.8m at any point more than 0.75m from the edge of the floor space.
Any other habitable rooms other than dwelling house or dwelling unit	2.4m over a minimum of 70% of the floor area, not less than 2.1 m over the remaining floor area.
All habitable rooms other than those listed above	2.4m
Passage or entrance hall	2.4m
Bathroom, shower-room, laundry or room containing a water closet	2.1 m over any area where a person would normally be in a standing position.
Open mezzanine floor which has an area not exceeding 25% of the area of the floor immediately below it	2.1m above and below the mezzanine floor.

TABLE 8—FLOOR JOISTS FOR RESIDENTIAL BUILDINGS

(p. 100(3))

	<i>Maximum clear spans (in m) with joists at following centres</i>					
	<i>Centres</i>					
	300mm	350mm	400mm	450mm	500mm	600mm
Section (mm)						
75 x 50	1.5	1.2	1.2		1.2	1.2
100 x 50	1.8	1.8	1.8		1.5	1.5
125 x 50	2.5	2.0	2.0		2.0	1.8
150 x 50	3.0	2.7	2.7		2.4	2.4
175 x 50	3.3	3.3	3.0		2.7	2.7
200 x 50	3.9	3.6	3.6		3.3	3.0
225 x 50	4.5	4.2	3.9		3.6	3.6
275 x 50	5.4	5.1	4.8		4.5	4.2
150 x 75			3.0	3.0	3.0	2.5
175 x 75			3.5	3.5	3.5	3.0
200 x 75			4.0	4.0	4.0	3.5
225 x 75			5.0	4.5	4.5	4.0
275 x 75			6.0	6.0	5.5	5.0

TABLE 9 —STRENGTH OF MASONRY UNITS AND MORTAR

(p. 104(3))

Wall type	Position		Minimum average compressive strength, (KN/m ²)		Class of mortar required
			Solid	Hollow	
Structural other than foundation and retaining walls	Single storey building	External or Internal	7.0	3.5	II
	Single storey building above ground	External or Internal	10.5 or *14.0	7.0	II or I
Non-structural other than parapet, balustrade and free-standing walls	External		7.0	3.5	II
	Internal		7.0	3:5	III
Free-standing	External or		10.5	7.0	II
Foundation	Supporting single storey		7.0	3,5	II
Foundation	Supporting double storey		10.5 or 14.0	7.0	II or I
Parapet			7.0	3.5	II or I
Balustrade			7.0	3.5	II
Retaining			10.5	7.0	II

CLASSES OF MORTAR

(p. 104(4), 126)

	<i>Mix Proportions (Parts by volume)</i>		
	<i>Portland Cement</i>	<i>Lime</i>	<i>Sand (Measured loose or damp)</i>
Class			
I	2	3	4
II	1	0.5	4
III	1	1	6
IV	1	2	8
*Addition of Lime is optional			

TABLE 11—DIMENSIONS OF MASONRY WALLS IN BUILDINGS

(p. 105(1)(6)(8))

<i>Nominal wall thickness (mm)</i>	<i>Use of wall in a building</i>	<i>Maximum storey height (m)</i>	<i>Maximum height ground floor to top of external gable (m)</i>	<i>Maximum un-supported length (m)</i>	<i>Minimum nominal unit strength (KN/m2)</i>		<i>Minimum class of mortar</i>
					Hollow units	Solid units	
90	Non-structural internal wall in any storey.	3.0	NA	4.0	7.0	3.5	III
	External infilling and cladding to framed building to height of 25m.	3.3	NA	note (3)	7.0	NP	II
	Wall providing lateral support in single storey building but carrying no gravity load other than its own weight.	3.0	NA	4.0	7.0	3.5	. II
140	Non-structural internal wall in any storey.	3.0	NA	6.0	7.0	3.5	III

<i>Nominal wall thickness (mm)</i>	<i>Use of wall in a building</i>	<i>Maximum storey height (m)</i>	<i>Maximum height ground floor to top of external gable (m)</i>	<i>Maximum un-supported length (m)</i>	<i>Minimum nominal unit strength (KN/m²)</i>		<i>Minimum class of mortar</i>
	External infilling and cladding to framed building to height of 25m.	3.0	NA	5.0	7.0	3.5	II
	Structural wall in single storey building.	3.3	5.0	6.0	7.0	3.5	II
	Structural wall in double storey building.	3.0	6.0	6.0	10.5	7.0	II
190	Non-structural internal wall in any storey.	3.5	NA	8.0	7.0	3.5	III
	External infilling and cladding to framed building to height of 25m.	3.3	NA	7.0	7.0	3.5	II
	Structural wall in single storey building.	3.5	5.5	7.0	7.0	3.5	II
	Structural wall in double storey building.	3.3	8.0	7.0	10.5	7.0	II
230	Non-structural internal wall in any storey	4.0	NA	8.0	7.0	3.5	III
	External infilling and cladding to framed building to height of 25m.	3.3	NA	8.0	7.0	3.5	II
	Structural wall in single storey building.	4.0	6.0	8.0	7.0	3.5	II

<i>Nominal wall thickness (mm)</i>	<i>Use of wall in a building</i>	<i>Maximum storey height (m)</i>	<i>Maximum height ground floor to top of external gable (m)</i>	<i>Maximum un-supported length (m)</i>	<i>Minimum nominal unit strength (KN/m²)</i>		<i>Minimum class of mortar</i>
	Structural wall in double storey building	3.3	8.0	8.0	10.5	7.0	II
90-50-90 To	External infilling and cladding to framed building to height of 25m	3.3	NA	5.0	7.0	3.5	II
90-110-90	Structural wall in single storey building	3.0	4.5	7.0	7.0	3.5	II
cavity wall	Structural wall in double storey dwelling unit without concrete slab roof.	2-8	7.5	7.0	14.0	NP	II
140-50-140 To	External infilling and cladding to framed building to height of 25m.	3.3	NA	6.0	7.0	3.5	LI
140-110-140	Structural wall in single storey building.	3.0	5.0	8.0	7.0	3.5	II
cavity wall	Structural wall in double storey building.	3-0	8.0	8.0	14.0	7.0	II

* NA means NOT APPLICABLE.
* NP means NOT PERMITTED

TABLE 12—TIMBER FRAMED STRUCTURES

(p. 105 (2))

Wall type	Stud size (mm)	Stud spacing (mm)	Maximum panel length		*Max. height (m)	Max. storey height (m)
			Supported both ends	Supported one end		
Structural	100x50	400	4.8	2.4	6.0	4.0
	100 x 50	600	4.0	2.0	6.0	3.0
	75x50	450	3.8	1.8	3.0	3.0
Non- structural	100x50	600	4.8	3.0		4.0
	70x50	600	4.2	2.4		3.0
*Maximum height means height to wall plate of highest storey or height to top of gable if there is a gable						

TABLE 13—THICKNESS OF FOUNDATION WALLS

(p. 109(3))

Type of foundation wall		Minimum thickness of wall(mm)						
		Acting as a retaining wall			Not acting as a retaining wall			
		* Difference in ground level (mm)			Height(mm)			
		Less than 500	500 to 750	750 to 1000	Less than 300	300 to 500	500 to 1000	1000 to 1500
Single leaf brick	External	140	190	230	140	140	140	190
	Internal		190	230	90	140	140	190
Single leaf hollow block (cavities filled with concrete)	External	140	190	230	140	140	140	190
	Internal	140	190	230	90	140	140	190
Cavity walls (cavity filled to 150mm below damp-proof course level)	External	190	190	230	190	190	190	190

TABLE 14—FREE STANDING WALLS

(p. 113(1), (5))

<i>Nominal wall thickness (mm)</i>	<i>Maximum height of wall above finished ground (m)</i>		<i>Piers</i>	
	<i>Without piers</i>	<i>With piers</i>	<i>Nominal dimensions (projection x width) (mm)</i>	<i>Max. spacing (centre to centre) (m)</i>
90	0.8	1.2	200 x 290	1.8
110	1.0	1.4	240 x 230	1.8
140	1.3	1.-6	300 x 290	2.0
190	1.5	2.0	400 x 290	2.5
230	1.8	2.3	480 x 350	3.5
290	2.2	2.6	400x290	4.5

TABLE 15—RETAINING WALLS

(p. 114(7))

<i>Nominal wall thickness (mm)</i>	<i>Max. height of fill to be retained (m)</i>	<i>Piers</i>	
		<i>Nominal dimensions (projection x width) (mm)</i>	<i>Max. spacing (centre to centre) (m)</i>
190	0.8- 1.1	300x190	No piers required 2.0
	1.3	400x190	2.4
230	0.9- 1.4	360 x 230	No piers required 2,5
	1.5	480 x 230	2.7
290	1.1- 1.5	300x290	No piers required 2.7
390	1.4	No piers required	

TABLE 16—TYPES OF ROOF ANCHORS

(p. 115(6))

<i>Roof slope (degrees)</i>	<i>Max. roof truss, rafter or beam spacing (mm)</i>	<i>Type of anchor required</i>	
		<i>Light roof</i>	<i>Heavy roof</i>
Less than 15	760 1,050 1,350	A, B or C B or C C	Type A for all applications
15 to 30	760 1,050 1,350		
Greater than 30	Any	A, B or C	
<p>Note—</p> <p>type A, which consists of two strands of a 4mm galvanized steel wire;</p> <p>type B, which consists of a 30mm x 1.2mm galvanized steel strap; or</p> <p>type C, which consists of a 30mm x 1.6mm galvanized steel strap.</p>			

TABLE 17—RAIN PENETRATION TEST PERIOD

(p. 117(2)(4)(5))

<i>Mean annual rainfall* (mm)</i>	<i>Hourly mean wind speed* (m/s)</i>	<i>Minimum period (hours)</i>
More than	20	14
+1000	25	19
	30	24
	20	10
600-1000	25	15
	30	20
	20	6
200 – 600	25	11
	30	16
	20	2
0-200	25	7
	30	12
<p>Note—</p> <p>*See BS6399 Part 3 of 1996 for the general procedures and loadings to be adopted for the design of buildings;</p> <p>+1000 is based on a maximum rainfall of 1400mm; and</p> <p>where the actual annual rainfall is known to exceed 1400mm the figures for duration of test may be linearly extrapolated.</p>		

TABLE 18—DIMENSIONS OF NON-LOAD-BEARING WALL

(p. 122(1))

<i>Height</i>	<i>Length</i>
0.66m	3 m
0.83m	3.33 m
1m	4m
1.33m	4.66m
1.50m	5m
2m	6.66m
2.91m	8.33m
<p>Note— where both the length and the height of a wall, partition or panel, exceed these dimensions, it shall be divided by vertical and horizontal supports of the strength and rigidity that the condition herein is fulfilled; the wall, partition or panel, shall be supported along two vertical opposite ends; the wall, partition or panel, shall be supported along two horizontal opposite ends, where required; and the supported ends of the wall, partition or structure, shall be attached to the main structure by bonding, inserted into a groove, or by any other approved method of fixing.</p>	

TABLE 19—LENGTH OF ZONE OF SPACE

(p. 137(9)(10))

<i>Type of room served by opening</i>	<i>Length of zone of space</i>
Habitable room in dwelling house, dwelling unit or a building used for a residential- or institutional occupancy	1/3 H
Any other habitable room	1/5 H
Bathroom, shower or room containing a Water Closet pan or urinal	1/10 H
Where H represents the distance measured vertically from the head of the opening to the top of the wall containing the opening.	

TABLE 20—VENTILATION RATES FOR NATURAL VENTILATION

(p. 138(7), 141(5))

<i>Building Type/Facility</i>	<i>Ventilation Rates in Air Changes per Hour (ACH)</i>
Broadcasting studios	6-10
Offices including Call centres	4-6
Catering (inc. commercial kitchens)	30-40
Communal residential buildings	0.5-1
Dwellings (inc. high rise dwellings)	0.5-1
Hotels	10-15 for guest rooms with ensuite bathrooms
High rise (non-domestic buildings)	4-6 for office areas Up to 10 for meeting rooms
Schools	4-6
Dark rooms (photographic)	6-8
Laboratories	6-15
Standards rooms	45-60
Transportation buildings	6 ACH for car parks (normal operation) 10ACH (fire conditions)
Toilets	Opening windows of area 1/20th of floor area or mechanical ventilation at 6 litres/s per water closet or 3ACH minimum for non-domestic buildings.

TABLE 21—VOLUMETRIC FLOW OF AIR FOR ARTIFICIAL (FORCED MECHANICAL) VENTILATION

(p. 141(24), 156(d))

<i>Occupancy</i>	<i>Minimum Volumetric flow of air (litres/second)</i>		<i>Remarks</i>
	Smoking	Filtered or non-smoking	
<i>Public halls</i>			
Assembly halls	7.5	3.5	Air supply required per person
Churches	7.5	3.5	

Theatres (including lobbies and auditoria)	7.5	3.5	
Cinemas	7.5	3.5	
Dry-cleaners and laundries			
Commercial dry-cleaners (working areas)	-	120.0	Air supply required per person
Storage or collection area	7.5	5.0	
Laundries	7.5	5.0	
Educational buildings			
Classrooms	-	7.5	Air supply required per person
Laboratories	-	7.5	
Libraries	-	6.5	
Food and eating facilities (public)			
Dining-rooms and restaurants	7.5	5.0	Air supply required per person
Cafeterias	7.5	5.0	
Bars and cocktail lounges	7.5	5.0	
Kitchens	17.5	17.5	
Photographic darkrooms	-	10.0	Air supply required per person
Dwelling units			
Kitchens	50.0	50.0	Air supply required per person
Other living areas	5.0	5.0	
Bathrooms and shower-rooms	25.0	25.0	
Rooms containing a water closet pan or urinal	25.0	25.0	
Shops Malls, arcades, warehouses	7.5	7.5	Air supply required per room
Sales floors, showrooms, dressing rooms	7.5	7.5	
Sports and amusement facilities			
Ballrooms and discos	7.5	—	Air supply required per room
Bowling alleys (seating area)	7.5	—	
Playing area (gymnasium, etc)	—	10.0	
Locker-rooms	7.5	7.5	
Spectator areas	5.0	-	
Health spas and slimming salons	-	7.5	

Garages Parking garages Ticket kiosks Motor car repairs	7.5	3.5	Air supply required per sq. of floor area
	5.0	5.0	Air supply required per person
	10.0	10.0	Air supply required per sq. of floor area
Hotels, motels, resorts, dormitories and similar facilities Lobbies Conference rooms Assembly rooms Bedrooms Living-rooms (suites) Central kitchens Private kitchens	7.5 7.5 7.5	5.0 5.0 5.0	Air supply required per person
	7.5 7.5 17.5 50.0	17.5 50.0	Air supply required per person Air supply required per room
Libraries General Book stock	— —	6.5 3.5	Air supply required per person
Offices General Meeting and waiting spaces Conference and board rooms Cleaner's rooms	7.5 7.5 10.0	5.0 5.0 5.0	Air supply required per person
	—	1.0	Air supply required per sq. of floor area
Stages, TV, radio and movie film	7.5	5.0,	Air supply required per person
Rooms containing baths, showers, WC pans or urinals Serving a dwelling unit or any bedroom All others Transportation Waiting-rooms, ticket and baggage areas, corridor & gate areas, platforms, concourses	25.0	25.0	Air supply required per room
	20.0 7.5	20.0 7.5	Air supply required per bath,

	5.0 7.5	-	*Shower, WC pan, urinal stall or 600mm of urinal space
		5.0	Air supply required per person
Smoking-rooms	20.0	-	Air supply required per person
Occupancies other than those listed above		As determined by the approving authority	
	10.0	10.0	Air supply required per sq. of floor area
Hotels, motels, resorts, dormitories and similar facilities Lobbies Conference rooms Assembly rooms Bedrooms Living-rooms (suites) Central kitchens Private kitchens	7.5 7.5 7.5	5.0 5.0 5.0	Air supply required per person
	7.5 7.5 17.5 50.0	17.5 50.0	Air supply required per person Air supply required per room
Libraries	—	6.5	Air supply required
General Book stock	—	3.5	per person
Offices	7.5	5.0	Air supply required
General	7.5	5.0	per person
Meeting and waiting spaces Conference and board rooms Cleaner's rooms	10.0	5.0	
	-	1.0	Air supply required per sq. of floor area
Stages, TV, radio and movie film	7.5	5.0,	Air supply required per person
Rooms containing baths, showers, WC pans or urinals Serving a dwelling unit or any bedroom All others Transportation Waiting-rooms, ticket and baggage areas, corridor & gate areas, platforms, concourses	25.0	25.0	Air supply required per room

	20.0 7.5 5.0 7.5	20.0 7.5 —	Air supply required per bath, *Shower, WC pan, urinal stall or 600mm of urinal space
		5.0	Air supply required per person
Smoking-rooms	20.0	—	Air supply required per person
Occupancies other than those listed above		As determined by the approving authority	

TABLE 22—AIR CHANGES PER HOUR

(p. 141(5)(6))

<i>Building Type/Facility</i>	<i>Recommended Ventilation Rates in Air Changes per Hour (ACH)</i>	
<i>Assembly Halls and Auditoria</i>		
	Using displacement ventilation strategy	3-4
	Using High level mechanical ventilation strategy	6-10
<i>Sports Centres</i>		
	Fitness Centres	10–12
	Weight Training	10-12
	Squash Courts	4
	Ancillary Halls: -Sports -spectators	15 3
	Changing rooms	10
	Reception, administration and circulation spaces	3
	Creche	3
	Refreshment and bar areas	Not less than 8
	Swimming pool	4-6 8-10 if extensive water features
<i>Hospitals and Health Care Buildings</i>		
	Toilets —general —ensuite	10 6
	Bathrooms —general —ensuite	10 6
	Dirty utility room	10
	Changing rooms	5

	Isolation rooms	10 minimum
	Delivery rooms	10 minimum
	Recovery rooms	15
	Treatment rooms	6 minimum

TABLE 23—NUMBER OF SANITARY FIXTURES TO BE INSTALLED RELATIVE TO THE OCCUPANCY

(p. 156(a), 246(1), 261(3)(5))

	<i>Males</i>				<i>Females</i>		
<i>For occupancy of up to</i>	<i>Water closet pans</i>	<i>Urinals</i>	<i>Wash hand basins</i>	<i>Showers</i>	<i>Water closet pans</i>	<i>Wash hand basins</i>	<i>Showers</i>
10	1	1	1	2	2	1	2
20	1	2	2	2	3	2	2
30	2	2	3	3	5	3	3
40	3	3	3	3	6	3	4
60	3	4	4	5	7	4	5
80	4	5	5	5	9	5	5
100	5	6	5	6	10	5	6
	For an occupancy in excess of 100 add 1 water closet pan and 1 urinal for every 100 Persons	For an occupancy in excess of 100 add 1 wash hand basin for every 100 persons	For an occupancy in excess of 100 add 1 shower for every 40 persons	For an occupancy in excess of 100 add 1 water closet pan and 1 wash hand basin for every 80 persons	For an occupancy in excess of 100 add 1 shower for every 40 persons		

TABLE 24—PERMISSIBLE DISCHARGE PIPE LOADING

(p. 156(a), 246(1), 264(1))

<i>Maximum loading (fixture units)</i>			
<i>Nominal pipe diameter (mm)</i>	<i>Discharge stack pipes</i>	<i>Fixture discharge pipes and branch discharge pipes</i>	<i>Horizontal discharge pipes other than pipes referred to in column 3</i>
32	2	1	1
40	6	2	3
50	18	5	8
65	84	18	35
75	140	29	60
100	680	120	280
125	2400	350	870
150	6000	760	2100

TABLE 25—MID FREQUENCIES REVERBERATION TIMES FOR PUBLIC PERFORMANCE SPACES

(p. 159)

<i>Activity</i>	<i>Reverberation Time (seconds)</i>	<i>Building Type</i>
Broadcast	0.2-0.25	Sound dubbing.
	0.3	Announcer booths.
	1.0 – 2.0	Large music studios.
Speech	0.6-1.2	Small speech studios, council chambers, law courts, lecture theatres, meeting rooms and conference halls.
Drama	0.9-1.4	Theatres and function rooms.
Amplified sound	0.5-1.2	Multiplex cinemas, pop concert venues, discotheques and video wall settings.
Multiuse	1.0-1.7	School assembly halls, community halls, sports halls and arts halls.
Opera	1.0-1.6	Opera houses and theatres with orchestra pits.
Soloists, ensembles	1.2-1.7	Recital halls, orchestra rehearsal halls and chamber music salons.
Orchestral music	1.7-2.2	Concert halls.
Organ and choir music	2.0-5.0	Ceremonial halls, organ concert halls, churches and cathedrals.

TABLE 26—DAYLIGHT FACTORS AND LIMITING GLARE INDEXES

(p. 160(7))

<i>Situation</i>	<i>Average daylight factor (%)</i>	<i>Minimum daylight factor* (%)</i>	<i>Position of measurement</i>	<i>Limiting daylight glare Index</i>
<i>Assembly and concert halls</i>				
Foyers, auditoria	1	0.6	Working plane	24
Corridors	2	0.6	Floor	—
Stairs	2	0.6	Treads	—
<i>Drawing offices</i>				
General	5	2.5	On boards	21
<i>General building areas</i>				
Entrance halls and reception areas	2	0.6	Working plane	24
<i>Offices</i>				
General offices	5	2	Desks	23
Typing, business machines, manually operated computers	5	2.5	Desks	23
<i>Schools and colleges</i>				
Assembly halls	1	0.3	Working plane	21
Classrooms	5	2	Desks	21
Art rooms	5	2	Easels	21
Laboratories	5	2	Benches	21
Staffrooms, common rooms	5	1.5	Working plane	23
<i>Sports halls</i>				
General	5	3.5	Working plane	21

<i>Surgeries (medical and dental)</i>				
Waiting rooms	2	0.6	Working plane	24
Surgeries	5	2.5	Working plane	21

TABLE 27—DIMENSIONS FOR VERTICAL GLASS SUPPORTED IN A FRAME ALL ROUND IN EXTERNAL WALLS IN BUILDINGS WHERE THE HEIGHT MEASURED FROM GROUND TO TOP OF SUCH WALL DOES NOT EXCEED 10 METERS

(p. 173(2), 177)

<i>Nominal thickness of pane (mm)</i>	<i>Maximum pane area (m2)</i>					
	3	4	5	6	8	10
Monolithic annealed glass (ordinary glass)	0.75	1.5	2.1	3.2	4.6	6.0
Toughened safety glass	n/a	1.9	3.0	4.5	8.0	8.0
Laminated safety glass	n/a	n/a	2.2	3.0	4.3	5.7
Grade B patterned annealed & wired glass	n/a	0.75	1.2	1.9	2.6	3.4

TABLE 28—DIMENSIONS FOR VERTICAL GLASS SUPPORTED IN A FRAME ALL ROUND IN INTERNAL WALLS

(p. 173(2), 177)

<i>Nominal thickness of pane (mm)</i>	<i>Maximum pane area (m2)</i>					
	3	4	5	6	8	10
Monolithic annealed glass (ordinary glass)	0.75	1.5	2.1	3.2	4.6	6.0
Toughened safety glass	n/a	3.0	4.2	6.4	9.2	9.2
Laminated safety glass	n/a	n/a	4.1	6.0	7.2	7.2
Grade B patterned annealed & wired glass	n/a	0.75	1.2	1.9	2.6	3.4

TABLE 29—MAXIMUM THICKNESS OF CERTAIN MATERIALS

(p. 192(2))

	<i>Granite</i>	<i>Stone</i>	<i>Precast concrete</i>	<i>Marble</i>	<i>Profile sheet steel</i>
Up to 20 m from the ground floor	30mm	30mm	75mm	30mm	Not applicable
Over 20m above the ground level	40mm	40mm	100mm	40mm	Not applicable
Maximum panel sizes permissible	1.2m vertically, 0.6m horizontally				Not applicable

TABLE 30—MINIMUM DIMENSIONS FOR LIFT WELLS
(p. 218, 219(2))

800			680			630			Rated load (Kg)		
10			9			8			No. of Passengers		
1.75	1.5	1	1.75	1.5	1	1.75	1.5	1	Rated speed (m/s)		
1 400	1 400	1 400	1400	1 400	1 400	1 100	1 100	1 100	Width (Cw) (mm)		Car internal size
1 350	1 350	1 350	1250	1 250	1250	1 400	1 400	1 400	Depth (Cd) (mm)		
2	2	2	1.75	1.75	1.75	1.66	1.66	1.66	Maximum Area (Ca) (m2)		
2 300	2 300	2 300	2300	2 300	2300	2 300	2 300	2 300	Height (mm)		
1 900	1 900	1 900	1800	1800	1800	1 800	1 800	1 800	Width (Ww) (mm)		Well dimensions
2 300	2 300	2 300	2100	2 100	2100	2 100	2 100	2 100	Depth (Wd) (mm)		
800	800	800	800	800	800	800	800	800	Width (Ew) (mm)		Clear entrance
2 100	2 100	2 100	2100	2 100	2100	2 100	2 100	2 100	Height (Eh) (mm)		
1 800	1 700	1 700	1800	1700	1700	1 800	1 700	1 700	Pit depth (Ph) (mm)		
4 850	4 650	4 450	4850	4650	4450	4 850	4 650	4 450	Headroom (Sh) (mm)		
15	15	15	15	15	15	15	15	15	Area (Ra) (m2)		Machine room dimensions
2 500	2 500	2 500	2500	2 500	2500	2 500	2 500	2 500	Width (Rw) (mm)		
3 700	3 700	3 700	3700	3 700	3700	3 700	3 700	3 700	Depth (Rd) (mm)		
2 600	2 600	2 600	2600	2 600	2600	2 600	2 600	2 600	Height (Rh) (mm)		
7 650	7 450	7 250	7650	7450	7 250	7 650	7 450	7 250	Overall headroom (Uh) (mm)		

1000						900						
13						12						
2	1.8	1.75	1.6	1.5	1	2.5	2	1.75	1.5	1	2.5	2
1 600	1 600	1 600	1 600	1 600	1 600	1 600	1 600	1 600	1 600	1 600	1 400	1 400
1 400	1 400	1 400	1 400	1 400	1 400	1 350	1 350	1 350	1 350	1 350	1 350	1 350
2.4	2.4	2.4	2.4	2.4	2.4	2.2	2.2	2.2	2.2	2.2	2	2
2 300	2 300	2 300	2 300	2 300	2 300	2 300	2 300	2 300	2 300	2 300	2 300	2 300
2 400	2 400	2 400	2 400	2 400	2 400	2 100	2 100	2 100	2 100	2 100	1 900	1 900
2 300	2 300	2 300	2 300	2 300	2 300	2 100	2 100	2 100	2 100	2 100	2 300	2 300
1 100	1 100	1 100	1 100	1 100	1 100	900	900	900	900	900	800	800
2 100	2 100	2 100	2 100	2 100	2 100	2 100	2 100	2 100	2 100	2 100	2 100	2 100
2 800	1 800	1 800	1 800	1 800	1 800	2 800	2 800	1 800	1 700	1 700	2 800	2 800
6 000	4 850	4 850	4 300	4 300	4 300	5 650	5 650	4 850	4 650	4 450	5 650	5 650
20	20	20	20	20	20	15	15	15	15	15	15	15
3 200	3 200	3 200	3 200	3 200	3 200	3 200	3 200	2 500	2 500	2 500	3 200	3 200
4 900	4 900	4 900	4 900	4 900	4 900	4 900	4 900	3 700	3 700	3 700	4 900	4 900
3 050	2 700	2 700	2 700	2 700	2 700	2 600	2 600	2 600	2 600	2 600	2 600	2 600
9 400	7 750	7 750	7 200	7 200	7 200	8 450	8 450	7 650	7 450	7 250	8 450	8 450

1350			1250									
18			16									
1.75	1.5	1	3.5	2.5	2	1.8	1.75	1.6	1.5	1	3.5	2.5
2 000	2 000	2 000	1 950	1 950	1 950	1 950	1 950	1 950	1 950	1 950	1 600	1 600
1 500	1 500	1 500	1 400	1 400	1 400	1 400	1 400	1 400	1 400	1 400	1 400	1 400
3.1	3.1	3.1	2.9	2.9	2.9	2.9	2.9	2.9	2.9	2.9	2.4	2.4
2 300	2 300	2 300	2 300	2 300	2 300	2 300	2 300	2 300	2 300	2 300	2 300	2 300
2 600	2 600	2 600	2 600	2 600	2 600	2 600	2 600	2 600	2 600	2 600	2 400	2 400
2 300	2 300	2 300	2 300	2 300	2 300	2 300	2 300	2 300	2 300	2 300	2 300	2 300
1 100	1 100	1 100	1 100	1 100	1 100	1 100	1 100	1 100	1 100	1 100	1 100	1 100
2 100	2 100	2 100	2 100	2 100	2 100	2 100	2 100	2 100	2 100	2 100	2 100	2 100
1 900	1 900	1 900	3 650	2 800	2 800	1 900	1 900	1 900	1 900	1 900	3 650	2 800
4 850	4 800	4 800	6 300	6 150	6 150	4 850	4 850	4 400	4 400	4 400	6 300	6 000
22	22	22	22	22	22	22	22	22	22	22	20	20
3 200	3 200	3 200	3 200	3 200	3 200	3 200	3 200	3 200	3 200	3 200	3 200	3 200
4 900	4 900	4 900	4 900	4 900	4 900	4 900	4 900	4 900	4 900	4 900	4 900	4 900
2 800	2 800	2 800	3 350	3 150	3 150	2 800	2 800	2 700	2 700	2 700	3 250	3 050
7 850	7 800	7 800	10 400	9 500	9 500	7 850	7 850	7 250	7 250	7 250	10 400	9 400

2.1	75x50	75x50	75x50	100x50	100x50	100x50
2.4	100x50	100x50	100x50	100x50	100x50	100x50
2.7	100x50	100x50	125x50	125x50	125x50	125x50
3.0	100x50	125x50	125x50	125x50	125x50	125x50

TABLE 32—PURLINS AND BATTENS

(p. 239(2))

Clear span (m)	Sections are given (mm)								
	Clear distance apart of purlins (m)								
	0.6	0.9	1.2	1.5	1.8	2.1	2.4	2.7	3.0
0.9	50x40	50x40 50x50	50x40 75x40	75x25 75x40	75x40 5x50	75x40 75x50	75x40 75x50	75x50	75x50
1.2	50x40 50x50	75x25 75x40	75x40 75x50	75x40 75x50	75x50	100x40 100x40	100x50	100x50	100x50
1.5	75x25 75x40	75x40 75x100	75x50	100x40 100x50	100x50	100x50 100x75	100x50 100x75	125x50 100x75	125x50 100x75
1.8	75x40 75x50	75x50	100x50	100x50 100x50	125x50 125x75	125x50 25x75	150x50 125x75	150x50 150x75	150x50 150x75
2.1	75x50	100x50	125x50 100x50	125x50 125x75	125x50 125x75	150x50 125x75	150x50 150x75	175x50 150x75	200x50 50x75
2.4	100x50	100x50 100x75	125x50 125x75	150x50 125x75	150x50 150x75	175x50 150x75	175x50 150x75	200x50 150x75	200x50 150x75
3.0	125x50 100x75	150x50 125x75	150x50 125x75	175x50 150x75	200x50 150x75	200x50 200x75	200x50 200x75	200x75 200x100	200x75 200x100

TABLE 33—CEILING JOISTS

(p. 239(3))

<i>Sections in (mm)</i>	<i>Clear spans for various sections at different centres (mm)</i>				
	Mm	Mm	Mm	Mm	Mm
			Celotex or similar ceiling		
	450	600	750	1000	1200
			Plaster Ceiling		
	300	400	450	500	600
	M	M	M	M	m
75 x 50	1.90	1.80	1.70	1.60	1.40
100 x 50	2.40	2.30	2.20	2.10	2.00
125 x 50	3.00	2.90	2.80	2.60	2.40
150 x 50	3.60	3.50	3.30	3.20	2.90
180 x 50	4.20	4.10	3.90	3.70	3.40
205 X 50	4.90	4.70	4.40	4.20	3.80
230 X 50	5.50	5.30	5.20	4.80	4.30

TABLE 34—PROVISION FOR SANITARY FIXTURES AND FITTINGS
(p. 246(1), 258(8), 261(3)(5))

<i>Type of occupancy and occupancy</i>	<i>Fixture</i>	<i>Exceptions</i>
A1:		<p>(a) any building where facilities with Table 33B are available to both the public or visitors, no separate facilities shall be required for the public or visitors,</p> <p>(b) No separate facilities for the public or visitor shall be required within any shop having a floor area of less than 50m².</p> <p>(c) In any group of shops under one ownership or in any shopping complex on a single construction site-</p> <p>(i) facilities for personnel may be situated at convenient locations and not necessarily in any particular shop or shops;</p> <p>(ii) facilities for the public and visitors may be situated at convenient locations and not necessarily in any particular shop or shops;</p> <p>(iii) facilities for personnel may be grouped or combined with those provided for the use of the public or visitors.</p> <p>(d) In any occupancy where personnel are exposed to high-risk substance, dirt, filth, dust, soot, oil, grease or any similar substance, exposure to which is such that showers are necessary, at least a shower per 15 persons shall be provided separately for each sex and such showers shall be located in, or have direct access to, a change room.</p>
Personnel	Table 36	
Public and visitors	Males:	
	1 water closet pan	
	1 wash hand basin	
	Females:	
	1 water closet pan	
	1 wash hand basin	
A2:		
Personnel	Table 36	
Public and visitors	Table 37 (part a)	
Peak demand	Table 37 (part b)	
No peak demand or Participants in sports	Table 36	
A3:	Table 36	
A4:		
Personnel	Table 36	
Public and visitors	Males:	
	1 WC pan	
	1 wash hand basin	
	Females:	
	1 water closet	
	1 wash hand basin	
A5:		
Public and visitors	Table 37 (part a)	
Peak demand	Table 37 (part a)	
No peak demand	Table 37 (part b)	
Participants in sport	Table 36	
B1, B2 and B3	Table 36	
Personnel	1 water closet pan	
Public and visitors	1 wash hand basin	
C1 and C2		
Personnel	Table 36	
Public and visitors	Males	
	1 water closet pan	
	1 wash hand basin	
	Females	
	1 water closet pan	
	1 wash hand basin	

D1, D2 and D3 Personnel Public and visitors D4		
F1, F2 and F3		Any single hotel or suite or any servant's room with its own facilities need not be provided with separate facilities for males and females Showers may be substituted for baths in the following maximum ratios— Males - two-thirds of total Females - one-third of total
Personnel	Table 36	
Public and visitors	Males	
	1 water closet pan	
	1 wash hand basin	
	Females	
	1 water closet pan	
	1 wash hand basin	
G1		
Personnel	Table 36	
Public and visitors	Males	
	1 water closet pan	
	1 wash hand basin	
	Females	
	1 water closet pan	
	1 wash hand basin	
H1		
Personnel	Table 36	
Public, visitors and residents	Males	
	1 water closet pan	
	1 wash hand basin	
	Females	
	1 water closet pan	
	1 wash hand basin	
H2	Table 35	
H3 and H4		
Within each dwelling unit	1 water closet pan	
	1 wash hand basin	
J1, J2, J3 and J4	Table 36	
Educational Institutions Classrooms and lecture rooms		In primary schools the indicated number of sanitary facilities shall in each case be increased by one Separate facilities for personnel and students or pupils shall not be required where all facilities are available to both groups. Separate facilities for residential accommodation and classrooms or lecture rooms shall not be required where facilities in one are easily available to the other.
A3	Table 36	
Personnel Students or Pupils Dormitories or other residential accommodation	Table 37	
H2		
Personnel Students or pupils	Table 35	
E1, E2 and E3	Table 36	

TABLE 35—NUMBER OF SANITARY FIXTURES TO BE INSTALLED RELATIVE TO THE OCCUPANCY

(p. 246(1), 261(3)(5))

<i>For an occupancy of up to</i>	<i>Males</i>				<i>Females</i>		
	<i>Water closet pans</i>	<i>Urinals</i>	<i>Wash Hand Basins</i>	<i>Baths</i>	<i>Water Closet pans</i>	<i>Wash Hand Basins</i>	<i>Baths</i>
8	1	1	1	1	2	1	
20	1	2	2	2	3	2	2
40	2	3	3	3	4	3	3
60	3	4	4	4	6	4	4
80	4	6	5	5	9	5	5
100	4	8	6	6	12	6	6
120	5	9	6	6	14	7	7
140	5	10	7	7	15	8	8
180	5	11	8	8	16	8	8
	For an occupancy in excess of 180, add 1 water closet pan for every 50 persons	For an occupancy in excess of 180, add 1 urinal for every 40 persons	For an occupancy in excess of 180 add 1 wash hand basin and 1 bath for every 50 persons		For an occupancy in excess of 180 add 1 Water closet pan, 1 wash hand basin and 1 bath for every 60 persons		

TABLE 36—NUMBER OF SANITARY FIXTURES TO BE INSTALLED RELATIVE TO OCCUPANCY

(p. 246(1), 261(3)(5))

<i>For an occupancy of up to</i>	<i>Males</i>			<i>Females</i>	
	<i>Water closet pans</i>	<i>Urinals</i>	<i>Wash Hand Basins</i>	<i>Water closet pans</i>	<i>Wash Hand Basins</i>
15	1	1	1	2	1
30	1	2	2	3	2
60	2	3	3	5	3
90	3	5	4	7	4
120	3	6	5	9	5
	For an occupancy in excess of 120 add 1 Water closet pan, 1 urinal and 1 wash hand basin for every 100 persons			For an occupancy in excess of 120 add 1 water closet pan for every 50 persons	For an occupancy in excess of 120 add a wash hand basin for every 100 persons

TABLE 37—NUMBER OF SANITARY FIXTURES TO BE INSTALLED
RELATIVE TO THE OCCUPANCY

(p. 246(1), 261(3)(5))

<i>For an occupancy of up to</i>	<i>Males</i>			<i>Females</i>	
	<i>Water closet pans</i>	<i>Urinals</i>	<i>Wash hand basins</i>	<i>Water closet pans</i>	<i>Wash hand basins</i>
<i>(a) Facilities subject to peak demand</i>					
50	1	1	1	2	1
100	1	2	1	3	2
150	1	3	1	5	3
250	2	4	2	7	4
500	3	7	3	12	6
1000	3	12	4	16	7
1500	4	15	5	20	8
	For an occupancy in excess of 1,500 add 1 Water closet pan for every 500 persons	For an occupancy in excess of 1,500 add 1 urinal for every 300 persons	For an occupancy in excess of 1,500 add 1 Wash hand basin for every 500 persons	For an occupancy in excess of 1,500 add 1 water closet pan for every 150 persons	For an occupancy in excess of 1,500 add 1 wash hand basin for every 500 persons
<i>(b) Facilities not subject to peak demand</i>					
50	1	-	1	1	1
100	1	1	1	2	1
150	1	2	1	3	2
250	2	3	2	5	3
500	2	4	3	6	4
1000	2	6	5	8	6
1500	3	7	6	10	7
	For an occupancy in excess of 1,500 add 1 water closet pan for every 1,000 persons	For an occupancy in excess of 1,500 add 1 urinal for every 500 persons	For an occupancy in excess of 1,500 add 1 wash handbasin for every 700 persons	For an occupancy in excess of 1,500 add 1 water closet pan for every 300 persons	For an occupancy in excess of 1,500 add 1 wash hand basin for every 700 persons

TABLE 38—NUMBER OF SANITARY FIXTURES TO BE INSTALLED RELATIVE
TO THE OCCUPANCY
(p. 246(1), 261(3)(5))

	<i>Males</i>			<i>Females</i>	
<i>For an occupancy of up to</i>	<i>Water closet pans</i>	<i>Urinals</i>	<i>Wash hand basins</i>	<i>Water closet pans</i>	<i>Wash hand basins</i>
<i>(a) Facilities subject to peak demand</i>					
50	1	1	1	2	1
100	1	2	1	3	2
150	1	3	1	5	3
250	2	4	2	7	4
500	3	7	3	12	6
1000	3	12	4	16	7
1500	4	15	5	20	8
	For an occupancy in excess of 1,500 add 1 water closet pan for every 500 Persons	For an occupancy in excess of 1,500 add 1 urinal for every 300 Persons	For an occupancy in excess of 1,500 add 1 Wash hand basin for every 500 persons	For an occupancy in excess of 1,500 add 1 water closet pan for every 150 Persons	For an occupancy in excess of 1,500 add 1 wash hand basin for every 500 Persons
<i>(b) Facilities not subject to peak demand</i>					
50	1	—	1	1	1
100	1	1	1	2	1
150	1	2	1	3	2
250	2	3	2	5	3
500	2	4	3	6	4
1000	2	6	5	8	6
1500	3	7	6	10	7
	For an occupancy in excess of 1,500 add 1 water closet pan for every 1,000 persons	For an occupancy in excess of 1,500 add 1 urinal for every 500 persons	For an occupancy in excess of 1,500 add 1 wash hand basin for every 700 persons	For an occupancy in excess of 1,500 add 1 water closet pan for every 300 persons	For an occupancy in excess of 1,500 add 1 wash hand basin for every 700 Persons

TABLE 39—MAXIMUM PERMISSIBLE DRAIN LOADS
(p. 246(1), 265, 273(4))

Maximum Load (Fixture Units)		Nominal pipe diameter (mm)	Drain having a gradient of	
(110 OD)	100			
		1 in 5		
	12 000	1 in 10		
	9 000	1 in 20		
	6 400	1 in 40		
	4 500	1 in 60		
	3 650	1 in 80		
	3 150 (sp)	1 in 100		
	2 800 (sp)	1 in 120		
	2 550 (sp)	1 in 150		
	np	1 in 200		
	np	1 in 300		
	np	1 in 400		
	np	1 in 500		
(160 OD)	150			
	40 000			
	27 000			
	19 000			
	13 500			
	11 000			
	7 500			
	8 400			
	7 700			
	6 900			
	6 000			
	Np			
	np			
	np			
	200			
	75 000			
	56 000			
	40 000			
	28 500			
	23 000			
	20 000			
	18 000			
	16 500			
	15 000			
	13 000			
	10 600			
	np			
	np			
	np			
	225			
	105 000			
	76 000			
	54 000			
	38 000			
	31 000			
	27 000			
	24 000			
	22 000			
	19 500			
	17 000			
	14 000			
	np			
	np			
	np			
	250			
	100 000			
	72 000			
	51 000			
	41 000			
	36 000			
	32 000			
	29 000			
	26 000			
	22 500			
	15 500			
	16 000			
	np			
	300			
	—			
	165 000			
	117 000			
	82 000			
	67 000			
	58 000			
	52 000			
	47 500			
	42 500			
	37 000			
	30 000			
	26 000			
	23 500			
	375			
	—			
	295 000			
	210 000			
	148 000			
	125 000			
	104 000			
	93 000			
	85 000			
	76 000			
	66 000			
	54 000			
	47 000			
	42 000			

TABLE 40—SEWAGE FLOW FROM BUILDINGS

(p. 258(5)(6))

Type of establishment	Sewage flow (litres per person per day)
Boarding houses	110
Additional kitchen wastes for non-resident boarders	23
Hotels without private baths	110
Hotels with private baths	140
Restaurants (toilet & kitchen wastes per patron)	20
Tourist camps or caravan parks with central bathhouse	90
Day schools	37
Day workers at offices per shift	90
Hospitals	500
Factories (litres per person per shift, exclusive of industrial wastes)	140
Swimming baths Motels (per bed)	90
Drive-in theatres (per car space)	9
Residential dwelling units	150

TABLE 41—RATES OF PERCOLATION AND EFFLUENT

(p. 258(9))

Percolation rate: Average time for 25mm fall of test water level, minutes	Rate of application of effluent to subsoil infiltration areas, litres per sq. of french drain wall area per day
0-3	108 max.
3-5	108-100
6-10	99-80
11-15	79-65
16-20	64-53
21-26	52-40
27-30	39-33
Over 30	Not permitted

TABLE 42—FIXTURE UNIT RATINGS OF SANITARY FIXTURES

(p. 262(3))

Examples of Sanitary fixtures	Nominal diameter of trap, mm	Hydraulic load, fixture units
Wash hand basin, bidet, wall-mounted urinal (separate trap)	32	1
Bath, sink, shower, wash trough	40	2
Wall-mounted urinal with integral trap, commercial electrical sanitary fixtures	50	3
	75 or 80	5
WC pan	100	8
Sanitary group		12
<p>Notes</p> <p>The fixture unit rating for each type of fixture is a – measure of the hydraulic load and takes into account the duration of discharge, the interval between discharges and the mean discharge rate of the particular fixture.</p> <p>The hydraulic load for a sanitary group is not the same as the sum of the hydraulic loads for the individual fixtures comprising such group because the assumption made regarding the interval between discharges is different in each case.</p>		

TABLE 43—DISCHARGE STACK AND SUPPLEMENTARY
VENT STACK SIZES FOR SINGLE STACK SYSTEMS FOR
RESIDENTIAL OCCUPANCY
(p. 263(2))

Number of storeys served by discharge stack	Nominal diameter of discharge stack (mm)	Minimum nominal diameter of supplementary vent stack for discharge stack serving one or two sanitary groups in each storey, with cross vent at each floor (mm)
Up to 10	100	Vent stack not required
11 to 15	100	50
	150	Vent stack not required
16 to 30	150	Vent stack not required

TABLE 44—DISCHARGE STACK AND SUPPLEMENTARY –
VENT STACK SIZES FOR SINGLE STACK SYSTEMS:
OFFICE OCCUPANCY
(p. 263(3))

Number of storeys served by discharge stack	Maximum number of sanitary fixtures in a range in each storey	Minimum nominal diameter of discharge stack, mm	Minimum nominal diameter of supplementary vent stack, mm
1 -4	Not exceeding 5 water closet pans and 5 wash hand basins	100	Vent stack not required
5-8	Not exceeding 2 water closet pans and 2 wash hand basins		
	3 water closet pans and 3 wash hand basins		32
	Exceeding 3 water closet pans and 3 wash hand basins but not exceeding 5 water closet pans and 5 wash hand basins		40
9-12	Not exceeding 2 water closet and 2 wash hand basins		32
	Exceeding 2 water closet pans and 2 wash hand basins but not exceeding 4 water closet pans and 4 wash hand basins		40

1 -8	Not exceeding 5 water closet pans and 5 wash hand basins	150	Vent stack not required
9-24	Exceeding 3 water closet pans and 3 wash hand basins, but not exceeding 5 water closet pans and 5 wash hand basins		75

TABLE 45—SIZE OF VENTILATING PIPES
(p. 266(6), 267(b))

Maximum number of fixture units served by vent	Minimum nominal diameter of ventilating pipe, mm											
									100		150	
	32	40 (OD)	40	50 (OD)	50	65	75 (OD)	75	100 (OD)	125	160 (OD)	200
	Maximum developed length of ventilating pipe (mm)											
6		*										
16		9	30	51								
48			9	30	51							
84			9	21	51	75						
128				7	15	36	60	90				
190				5	7	27	51	75				
1 000						7	18	24	96			
2 200						5	9	15	57	177		
3 800							5	7	27	75	195	
7 200									7	21	57	222

TABLE 46—LIMITING GRADIENTS OF DISCHARGE PIPES
(p. 268(1))

Waste branches				Soil branches				Horizontal pipes other than branch discharge pipes	
Single stack system		Ventilated one-pipe or two-pipe system		Water closet pan		Other soil fixtures		All systems	
Min.	Max.*	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.
1.25°	5°	1.25°	5°	5°	14°	2.5°	5°	2.5°	45°
(1/46)	(1/11.5)	(1/46)	(1/11.5)	(1/11.5)	(1/4)	(1/23)	(1/11.5)	(1/23)	d/1)
16		9	30	51					

TABLE 47—MINIMUM DIAMETER AND WATER SEAL
DEPTH OF TRAP

(p. 271(4))

Type of trap	Type of sanitary fixture	Type of Installation	Minimum nominal diameter (mm)	Minimum depth of water seal (mm)
Integral	water closet pan, hospital soil fixture wall	All	75	50
	Mounted urinal		50	50
Non-integral	Bidet, drinking fountain, wash hand basin, wall-mounted urinal	two-pipe system	32	40
		one-pipe system	32	40
		single stack system	32	75
	Bath, shower, sink (hospital, kitchen or laboratory type), laundry trough, clothes-washing machine, food- waste	two-pipe system	40	40
	Disposal unit (all of the domestic type), sanitary-towel disposer			
		One-pipe system	65	65
		single stack system	40	75
	Clothes-washing machine, dish	All	50	75
	Washing machine, food-waste disposal unit, floor drain (all of commercial type)			
	Urinal of slab or	All	50	50
	Stall type up to 3 units or 1.8M in			
	Length			
	Urinal of slab or			
	Stall type (all other), gully	All	75	50

TABLE 48—SEWERAGE AND WASTE DISPOSAL
(p. 307(1)(3))

Fittings	Permeable Soils	Impermeable Soils
Sink waste, water closets & servant quarters waste, Baths, lavatory basins and showers	Septic tank, or soak pit, or radial arms or french drains As indicated in paragraph 367 but a separate waste water storage tank	Conservancy tank As indicated in paragraph 367 but a separate waste water storage may be permitted with an approved overflow into the main system of disposal. Tank may be permitted with an approved overflow into the main system of disposal
All waste water from residential, hospital, hotels,	Membrane Bio Reactor, Moving Bed Bio Reactor, Sequencing Batch Reactor, other mechanized Waste Water Treatment Plants that shall ensure that effluent is compliant with the Water Quality Regulations of 2006 (L. N. No. 121 of 2006)	Water shall be recycled and used for irrigating gardens, outdoor cleaning etc. And other non-potable water use

TABLE 49—TREES OR SHRUB SETBACKS
(p. 331(1))

Trees shall be setback a minimum distance, measured from the centre of the tree trunk, from above and below grade utilities and property lines as follows—

Tree Setbacks from Utilities and Property Lines	
Distance from Power Infrastructure	3.5m
Distance from Fire Hydrants	3.5m
Distance from Stop Signs	3.5m
Distance from Yield Signs	3.5m
Distance from Transit Zones	3.5m*
Distance from Other Signs	2.0m
Distance from Private Property on Walkway	1.0m
Distance from Private Property on Open Parkland	3.0m
Distance from Private Property on Boulevards	1.0m
Distance from Shallow Underground Utilities	1.0m
Distance from Gas or Oil Right of Way	As per the utility company standards

Distance from Deep Underground Utilities	1.5m
Distance from Sanitary and Storm Sewers	1.8m
Distance to Sanitary and Storm Sewers and Manholes	2.0m
Distance from Water Mains	2.5m
*Ensure trees do not create sightline obstructions for vehicles approaching transit zones.	
Note: Distances from overhead power lines shall be as per the requirements established by the Utility Company.	

TABLE 50—TREE SETBACKS FROM WALKWAYS AND ROADS

(p. 331(1))

Trees shall be setback a minimum distance, measured from centre of the tree trunk, to walkway and roads, as follows—

Local Residential	
Face of Curb	1.25m
Face of Curb (Boulevard Without Sidewalk)	2.0m
Collector Residential or Local Industrial (Roadway Width less than 15m)	
20m Right of Way	
Face of Curb	1.25m
Right of Way greater than 20m	
Face of Curb	1.65m
15m Industrial or Local Collector	
Face of Curb	1.65m
Arterial Roadway	
Face of Curb	2.0m*
Hard surface	
Edge of Commercial or Industrial Accesses	1.5m
Edge of Residential Driveways	1.0m
Edge of Sidewalk	1.0m
* Distances less than indicated above, are at the discretion of the relevant approving authority in consultation with the responsible Road Agency.	
Note: Setback distances apply to both Boulevards and Medians.	

TABLE 51—NATURALIZATION PLANTING

(p. 331(1))

Where naturalization planting is in use, plant material may be substituted as per the following—

Full Size Tree	Potted Tree	Potted Tree	Shrubs	Trees or Shrubs - Whips & Plugs
60mm Calliper.	40mm Calliper.	20mm Calliper.	5 Gallon Pot	Minimum 100mm Pot
<p>A maximum of 10% of the required 60mm calliper trees on a construction site may be substituted for smaller material.</p> <p>Emergent material does not qualify into the shrub or tree equivalency.</p> <p>Shrub size requirement may be substituted at a rate of 5 shrub plugs for 1 full size shrub.</p> <p>Example: One 60mm calliper full size tree can be substituted with either two 40mm calliper potted trees, or five 20mm calliper potted trees or twenty-five 100mm pots (tree or shrubs, whips and plugs).</p>				

TABLE 52—MINIMUM FLOOR SPACE FOR STORAGE CHAMBERS

(p. 348(1))

Description of building	Total floor area as shown on plan	Description of storage chamber	Minimum floor space of storage chamber
Domestic Building	Usable floor space 1,320m ² or more but not exceeding 13,200 m ²	Storage chamber	Total usable floor space in m ² divided by 440
	Usable floor space 13,200 m ² or more but not exceeding 32000 m ²	Storage chamber with vehicular access	
Non-domestic Building	Usable floor space 3,960m ² or more but not exceeding 39,600 m ²	Storage chamber	Total usable floor space in m ² divided by 1,320
	Usable floor space 39,600 m ² or more	Storage chamber with vehicular access	

Composite Building	Aggregate usable floor space 1,320m ² or more but not exceeding 13,200 m ²	Storage chamber with vehicular access	Aggregate of the total usable floor space of the domestic building component in m ² divided by 440 and the total usable floor space of the non-domestic building component in m ² divided by 1,320.
	Aggregate usable floor space 1,320m ² or more		

TABLE 53—NON-COMBUSTIBILITY AND FIRE RESISTANCE FOR SMALL HOUSE
(p. 366(1))

Distance of wall from nearest boundary (m)	Appropriate requirements as to non-combustibility and fire resistance
3	No requirement
1.5 - 3	To be externally non-combustible
1 - 1.5	To be non-combustible throughout
Less than 1	To be non-combustible throughout and to have a resistance to external fire of half-an-hour

TABLE 54—NON-COMBUSTIBILITY AND FIRE RESISTANCE
(p. 368(1))

Capacity of building (m ³)	Distance of wall from nearest boundary (m)		Appropriate requirements as to non-combustibility and fire resistance
	Not less than	Less than	
Less than 510	3 and above	- 3 1.5	No requirement. To be externally non-combustible. To be externally non-combustible and to have a fire resistance of 1 hour
510 - 1,020	6 and above	- 6 3	No requirement. To be externally non-combustible. To be externally non-combustible and to have a fire resistance of 1 hour.
1,020 and above	Less than 3		To be externally non-combustible and, unless it is an office building more than 9m from the nearest boundary, to have a fire resistance of 1 hour

TABLE 55—NON-COMBUSTIBILITY AND FIRE RESISTANCE FOR BUILDING OF THE WAREHOUSE CLASS, NOT INTENDED TO BE USED WHOLLY OR PREDOMINANTLY FOR STORAGE
(p. 368(2))

Capacity of building (m ³)		Distance of wall from nearest boundary (m)		Appropriate requirements as to non-combustibility and fire resistance
Not less than	Less than	Not less than	Less than	
-	510	3 1.5 1	- 3 1.5	No requirement. To be externally non- combustible. To be externally non- combustible and to have a fire resistance of 1 hour
510	1,020	6 3 1.5	- 6 3	No requirement. To be externally non- combustible. To be externally non- combustible and to have a fire resistance of 1 hour.
1,020	-	3	-	To be externally non- combustible and, unless it is an office building more than 9m. from the nearest boundary, to have a fire resistance of 1 hour

TABLE 56—FIRE RESISTANCE OF FLOORS, COLUMNS, BEAMS AND CERTAIN WALLS
(p. 373(1))

Class of Building	Height, cubic capacity, floor area (of any one storey)	Fire Resistance
Domestic buildings intended to be used wholly or predominantly for human habitation	Exceeding two storeys but not exceeding 15m. in height, or Exceeding 305 sq. m. but not exceeding 762 sq. m in floor area	30 Min.
	Exceeding 15m. in height, or Exceeding 762 sq. m. in floor area	1Hour
Domestic buildings not intended to be used wholly or predominantly for human habitation	Exceeding 15m. but not exceeding 22m. in height, or Exceeding 1,416 cu. m. but not exceeding 3,540 cu. m in capacity	30 Min.
	Exceeding 22m. in height, or Exceeding 3,540 cu. m. in capacity	1Hour
Public buildings and buildings of the warehouse class not used wholly or predominantly for storage	Not exceeding 15m. in height, or Exceeding 1,416 cu. m. but not exceeding 3,540 cu. m. in capacity	20 Min.
	Exceeding 15m. but not exceeding 22m. in height, or Exceeding 3,540 cu. m. but not exceeding 7,079 cu. m. in capacity, and not exceeding 696 sq. m. in floor area	1 Hour

	Exceeding 22m. in height, or Exceeding 7,079 cu. m. in capacity, or c Exceeding 696 sq. m. in floor area	2hrs
Buildings of the warehouse class used wholly or predominantly for storage	Exceeding 2 sq. m. but not exceeding 15m. in height, or Exceeding 708 cu. m. but not exceeding 1,416 cu. m. in capacity	45 Min.
	Exceeding 1,416 cu. m. but not exceeding 3,540 cu. m. in capacity	1 Hour
	Exceeding 15m. but not exceeding 22m. in height, or Exceeding 3,540 cu. m. but not exceeding 7,080 cu. m. in capacity and not exceeding 696 sq. m. in floor area	2hrs
	Exceeding 22m. in height, or Exceeding 7,080 cu. m. in capacity, and the(c) Exceeding 696 sq. m. in floor area	4hrs

TABLE 57—MAXIMUM DIVISION AREA
(p. 383(1), 392(2))

Occupancy	No fixed automatic fire extinguishment installation (m2)	With fixed automatic fire extinguishment installation (m2)	
		1 storey	two storeys and over
*E1, *E2, *E3	1250	1 250	1 250
A2, B2, B3, C1, C2, G1	5000	No limit	10 000
A4, A5, D3, J3, J4	No limit	No limit	No limit
All other occupancies	2500	No limit	5 000

TABLE 58—PRESUMED FIRE RESISTANCE OF WALLS AND PARTITIONS
(p. 384(1), 434(2)(4))

Construction	Minimum thickness (excluding plaster) for period of hours (mm)				
SOLID CONSTRUCTION:	6hrs	4 hrs	2 hrs	1 hr	1/2 hr
Stone, bonded and coursed; bricks of clay, concrete or sand lime: No plaster	216	216*	21 6¥	102	102
Concrete blocks: Class 1 Aggregate: No plaster			102	76	64

Plastered at least 13mm thick on each side			102	64	64
Class 2 Aggregate: No plaster				102	76
Plastered at least 13mm thick on each side			102	76	51
Gypsum blocks: No plaster			102	76	52
Plastered at least 13mm thick on each side			76	51	51
Wood wool slabs: Plastered at least 13mm thick on each side.			76	51	51
Reinforced concrete: Aggregate with reinforcement (in 2 layers in walls over 127mm in thickness) in 2 different spaced not further apart than 153mm centres, the volume of which is not less than 0.2% of the volume of the concrete with minimum cover of 25mm	229	178	102	76	7
Plaster board: Supported at top and bottom edges in steel channels and plastered on each side at least 16mm thickness with gypsum plaster				19	
Glass bricks: In panels not exceeding 4sq.m. in area with expansion joints not less than 2.5mm per m width of the panel at each side of the panel, and not less than 2.5mm per m of the height of the panel at the top of the panel				102	
<p>* Where plastered at least 25mm thick on each side with gypsum/vermiculite plaster not leaner than 1:2 and where the wall does not exceed 3 m either in height or length, the thickness for this period may be 102mm.</p> <p>¥ Where plastered at least 13mm thick on each side and where the wall does not exceed 3 m either in. height or length, the thickness for this period may be 102mm.</p>					
HOLLOW BLOCK CONSTRUCTION:	6hrs	4 hrs	2 hrs	1 hr	1/2 hrs
Clay Blocks: Plastered at least 12mm thick on each side and shells not less than 19mm thick: 1 cell in each block and each block not less than 50% solid				102	76
1 cell in each block and each block not less than 30% solid				152	
2 cells in each block and each block not less than 50% solid			216	102	
2 cells in each block and each block not less than 30% solid				152	
CONCRETE BLOCKS:					
Plastered at least 13mm thick on each side and 1 cell in wall thickness: Class 1 Aggregate		222	114	76	64

Class 2 Aggregate				222	76
Gypsum blocks: Not less than 70% solid: No plaster			76	51	51
Class 1 aggregate means formed slag, pumice, blast furnace slag, crushed brick and burnt clay products, including expanded clay, well burned clinker, crushed limestone Class 2 aggregate means flint, gravel, granite and all crushed natural stones other than limestone.					

TABLE 59—PRESUMED FIRE RESISTANCE OF NON-STRUCTURAL HOLLOW AND PARTITIONS
(p. 384(1), 434(2)(4))

Construction	Minimum thickness (mm) on each face for period of hours				
	4 hrs	2hrs	1 hr	1/2 hr	
STEEL OR TIMBER STUDDING					
Plaster on metal or timber lathing: Portland cement plaster, Portland cement lime plaster or gypsum plaster			19	13	
Plaster board with or without gypsum plaster; 10mm thick plaster board on each side				5(Neat single coat)	
10mm thick perforated plaster board on each side. Two 10mm thick plaster boards on each side			13		
13mm thick plaster board on each side			Nil		
19mm thick plaster board on each side			10	Nil	
HOLLOW BLOCK CONSTRUCTION: -					
Clay Blocks: Plastered at least 12mm thick on each side and shells not less than 19mm thick: 1 cell in each block and each block not less than 50% solid				102	76
1 cell in each block and each block not less than 30% solid				152	
2 cells in each block and each block not less than 50% solid			21 6	102	
2 cells in each block and each block not less than 30% solid				152	
CONCRETE BLOCKS:					
Plastered at least 13mm thick on each side and 1 cell in wall thickness: Class 1 Aggregate		222	11 4	76	64
Class 2 Aggregate				222	76

Gypsum blocks: Not less than 70% solid: No plaster			76	51	51
Class 1 aggregate means formed slag, pumice, blast furnace slag, crushed brick and burnt clay products, including expanded clay, well burned clinker, crushed limestone Class 2 aggregate means flint, gravel, granite and all crushed natural stones other than limestone.					

TABLE 60—PRESUMED FIRE RESISTANCE OF HOLLOW STUD
CONSTRUCTION OF STEEL AND TIMBER
(p. 384(1), 434(2)(4))

CONSTRUCTION WORKS	Minimum thickness (mm) on each face for a period of hours				
	6 hrs	4 hrs	2hrs	1 hr	1/2 hrs
Steel or Timber Studding: -					
Plaster on metal or timber lathing: Portland cement plaster, Portland cement lime plaster or gypsum				19	13
Plaster board with or without gypsum plaster: 10mm thick plaster board on each side					5 (Neat single coat)
10mm thick perforated plaster board on each side				13	
Two 10mm thick plaster boards on each side				Nil	
13mm thick plaster board on each side				10	
19mm thick plaster board on each side				Nil	

TABLE 61—PRESUMED FIRE RESISTANCE OF FLOORS
(p. 384(1), 434(2)(4))

Construction	Minimum thickness (mm) for period of hours				
	4 hrs	2 hrs	1 hr	1/2 hr	Periods specified for small houses
FILLER JOIST CONSTRUCTION					
thickness of concrete	152	127	76	89	
Concrete cover on bottom of joist.	76	25	13	13	
SOLID REINFORCED CONCRETE CONSTRUCTION					

(Including flat slab construction and floors constructed on pre-cast inverted “U” channel or T-sections, without a ceiling or soffit): Thickness of concrete	152		102	89	
Concrete cover to reinforcement	25	13	13	13	
HOLLOW BLOCK FLOOR CONSTRUCTION (Including floors constructed of precast concrete units of box- section or I - section):					
Aggregate thickness of non-combustible material (excluding ceiling finishes (if any))	127	89	76	63	
Concrete cover to reinforcement	25	13	13	13	
STRUCTURAL TIMBER CONSTRUCTION:					
(a) Plan edge boarding on timber joists not less than 38mm wide with ceiling of:					
(i) Timber lath and plaster- Thickness of plaster					16
(ii) Timber lath and plaster with plaster of minimum thickness of 15mm covered on underside with plaster, board of thickness			13		
(iii) Metal lath and plaster- Thickness of plaster			19		
(iv) 1 layer of plaster-board of thickness					13
(v) 1 layer of plaster-board of minimum thickness of 10mm finished with gypsum plaster of thickness					13
(vi) 1 layer of plaster-board of minimum thickness of 13mm finished with gypsum plaster of thickness				13	
(vii) Two layers of plaster-board of total thickness of 13mm finished with gypsum plaster of thickness					19
(viii) 1 layer of insulating board of minimum thickness of 13mm finished with gypsum plaster of thickness					13

(ix) Wood-wool slab 25mm thick finished with gypsum plaster of thickness			5		
(b) Tongued and grooved boarding not less than 19mm (nominal) thickness on timber joists not less than 38mm wide with ceiling of:					
(i) Timber lath and plaster- Thickness of plaster.				10	16
(ii) Timber lath and plaster with plaster of minimum thickness of 19mm covered on underside with plaster-board of thickness				5	10
(iii) Metal lath and plaster: - Thickness of plaster				22	
(iv) 1 layer of plaster-board of thickness					
(v) 1 layer of plaster-board of minimum thickness of 13mm finished with gypsum plaster of thickness.				5	
(vi) 2 layers of plaster-board of total thickness					5
(vii) 1 layer of insulating board of minimum thickness of 13mm finished with gypsum plaster of thickness					
(viii) Wood-wool slab 25mm thick finished with gypsum plaster of thickness				16	
(c) Tongued and grooved boarding not less than 25mm (nominal) thickness on timber joists not less than 178mm deep by 51mm wide with ceiling of:					
(i) Timber lath and plaster thickness of plaster				13	10
(ii) Metal lath and plaster thickness of plaster				5	
(iii) 1 layer of plaster-board of thickness				19	
(iv) 1 layer of plaster board of minimum thickness of 10mm finished with gypsum plaster of thickness					

(v) 1 layer of plaster-board of minimum thickness of 13mm finished with gypsum plaster of thickness				13	13
(vi) 2 layers of plaster board of total thickness				5	
(vii) 1 layer of insulating board of thickness				5	
(viii) 1 layer of insulating board of minimum thickness of 13mm finished with gypsum plaster of thickness				5	

TABLE 62—PRESUMED FIRE RESISTANCE OF STEEL COLUMNS AND BEAMS
(p. 384(1), 434(2)(4))

Construction	Minimum thickness of protection (mm) for period of hours			
	4 hrs	2 hrs	1 hr	1/2 hr
SOLID PROTECTION: Columns: Reinforced concrete.	64	51	25	25
Solid bricks of burnt clay of sand lime Solid blocks reinforced in every horizontal joint	76	51	51	51
(i) Foamed slag or pumice concrete	64	51	51	51
ii) Gypsum blocks	51	51	51	51
Beams: Reinforced concrete	64	51	25	25
HOLLOWED PROTECTION:				
Columns; Solid bricks or burnt clay or sand lime reinforced in every horizontal joint	114	76	51	51
Solid bricks of foamed slag or pumice concrete or gypsum reinforced in every horizontal joint	76	51	51	51
Moulded asbestos bound in position with Ni-chrome wire not less than No. 16 SWG in thickness, the wires to be sunk not less than 3mm deep in the outer surface of the asbestos and the grooves and all joints in the asbestos to be filled with refractory cement.	64	38	25	25
Portland cement plaster or Portland cement-lime plaster on metal lathing				19
Portland cement plaster or Portland cement-lime plaster on metal lathing with reinforcement over rendering coat			25	
Gypsum plaster on metal lathing			22	16
Gypsum plaster on 10mm gypsum plaster boards with No. 16 S.W.G. wire binding at 102mm pitch			13	

2 layers of metal lathing plastered with gypsum plaster on each layer	19			
Precast concrete consisting of 4 volumes of vermiculite to 1 volume of Portland cement, reinforced with expanded metal, wire mesh of with No. 15 S.W.G. wire binding at 102mm pitch			25	
Portland cement plaster or Portland cement-lime plaster on metal lathing				19
Portland cement plaster or Portland cement-lime plaster on metal lathing with reinforcement over the rendering coat				
Gypsum plaster on metal lathing				
Gypsum plaster on 10mm gypsum board supported on wood battens.				
Gypsum plaster on 19mm gypsum, plastered board with No. 16 S.W.G. wire binding at 102mm pitch				
Precast concrete consisting of 4 volumes of vermiculite mesh or with No. 16 S.W.G. wire binding at 102mm pitch		22 13	25 16 25	5(neat single coat)
<p>Notes</p> <p>“solid protection” means casing which is bedded close up to the steel without any intervening cavities and with all joints in that casing made full and solid;</p> <p>“hollow protection” means that there is a void between the protective material and the steel. All hollow protection to columns shall be effectively sealed at each floor level;</p> <p>“reinforcement” where reinforcement is required in this Table, that reinforcement shall consist of steel binding wire not less than No. 13 S.W.G. in thickness, or a steel mesh weighing not less than 544 grammes per sq. m; and</p> <p>in concrete protection the spacing of that reinforcement shall not exceed 3048mm in any direction.</p>				

TABLE 63—PRESUMED FIRE RESISTANCE OF REINFORCED CONCRETE COLUMNS AND BEAMS
(p. 384(1), 434(2)(4))

Construction and materials	Minimum thickness of protection in mm for period of hours			
	4hrs	2hrs	1hrs	½ hrs
Reinforced concrete columns	450	300	203	152
Reinforced concrete columns with light 51mm mesh reinforcement placed centrally in the concrete cover to longitudinal reinforcement.	300	225		
-	Minimum thickness of protection in mm for period of hours			
	4hrs	2hrs	1hrs	½ hrs
Reinforcement concrete beams	64	51	38	25

NOTE—

This Table is not to be applied in the case of post or pre-stressed concrete.

Special approval of the approving authority will be required in the case of this special form of construction.

TABLE 64—FIRE RESISTANCE OF OCCUPANCY AND DIVISION SEPARATING ELEMENTS
(p. 385(3))

Occupancy	Fire resistance, minutes
All occupancies other than those referred to below	60
B1, C1, D1, E1, E2, E3, F1, F3, J1	120

TABLE 65—STABILITY OF STRUCTURAL ELEMENTS OR COMPONENT
(p. 386(2)(3)(4), 398(1)(2), 417(1), 423(4))

Type of occupancy	Class of occupancy	Stability, minutes				
		Single Storey Building	Double Storey Building	3 -10 Storey Building	11 storeys Building and over	Basement in Any Building
Entertainment and public						
Assembly	A1, A2,	30	60	120	120	120
Theatrical and indoor sport	A3,	30	60	120	120	120
Places of instruction	A4, A5	30	30	90	120	120
Worship		30	60	90	120	120
Outdoor sport		30	30	60	90	
High risk commercial service						
Moderate risk commercial	B1 B2 B3	60	60	120	180	120
Service		30	60	120	120	120
Low risk commercial service		30	30	90	120	120
Exhibition hall	C1	60	90	120	120	120
Museum	C2	30	60	90	120	120

High risk industrial	D1	60	90	120	180	240
Moderate risk industrial	D2 D3 D4	30	60	90	120	180
Low risk industrial		30	30	60	120	120
Plant room		30	30	60	90	120
Places of detention Hospital	E1 E2	60	60	90	120	120
Other institutional (residential)	E3	60	90	120	180	120
		60	60	120	180	120
large shop	F1 F2	60	90	120	180	120
Small shop	F3	30	60	120	180	120
Wholesalers' store		30	90	120	120	120
Offices	G1	30	30	60	120	120
Hotel Dormitory	H1 H2 H3	30	60	90	1 20	120
Domestic residence	H4	30	30	90	120	120
		30	30	90	120	120
Detached dwelling house		30	30	90	N/A	120
High risk storage	J1 J2 J3 J4	60	90	120	1 80	240
Moderate risk storage		30	60	90	120	180
Low risk storage		30	60	90	120	180
Parking garage		30	30	90	90	120
		30	30	60	90	120

TABLE 66—CLASSES OF FIRE DOORS OR FIRE SHUTTERS

(p. 389(3), 427(3)(5))

Type of wall	Required minimum fire resistance of wall, minutes	Class of fire door or fire shutter
Occupancy separation	60	A
	120	B
Divisional separation	60	A
	120	D (or 2 C doors with approval)
Emergency route	120	B

TABLE 67—CLASSIFICATIONS FOR FITTED FLOOR COVERING
(p. 393(1)(3), 398(3))

Class of occupancy	Basement of building of any height	Single and double storey buildings		Building exceeding two storeys		Building of any height	
	Any floor area except that contemplated in column 5 or 6					Feeder routes	Emergency routes
	USP or SP	USP	SP	USP	SP		
A1	2	3	3	3	3	2	1
A2	2	3	3	3	3	2	1
A3	2	3	3	3	3	2	1
A4	2	3	3	3	4	2	1
B1	2	3	4	3	4	3	1
B2	2	4	5	3	4	3	1
B3	3	4	5	4	5	3	1
C1	3	3	4	3	4	2	1
C3	3	3	4	3	4	2	1
D1	NC	NC	NC	NC	NC	NC	NC
D2	2	4	5 ‘	3	4	3	1
D3	2	4	5	4	5	3	1
D4	NC	NC	NC	NC	NC	NC	NC
E1	NC	3	3	3	3	2	1
E2	NC	3	3	3	3	2	1
E3	NC	3	3	3	3	1	1
F1	3	4	5	3	4	2	1
F2	3	4	5	3	4	2	1
F3	3	4	5	3	4	2	1
G1	3	4	5	4	5	3	1
H1	1	4	5	4	5	3	1
H2	1	4	5	2	4	3	1
H3	1	5	5	3	4	3	1
J1	NC	NC	NC	NC	NC	NC	NC
J2	NC	NC	3	NC	3	2	1
J3	2	3	4	2	3	2	1
J4	NC	NC	NC	NC	NC	NC	NC

Where:

NC = Non-combustible material only.

SP = Protected by a sprinkler system.

USP = Not protected by a sprinkler system

TABLE 68—CLASSIFICATIONS FOR WALL FINISHES

(p. 394(1)(3))

Class of occupancy	Basement of building of any height	Single and double storey buildings		Building exceeding two storeys		Building of any height	
	Any wall area except that contemplated in column 5 or 6					Feeder routes	Emergency routes
	SP	USP	SP	USP	SP		
A1	1	3	3	3	3	2	1
A2	1	3	3	3	3	2	1
A3	1	3	3	3	3	2	1
A4	1	4	4	3	4	2	1
B1	2	3	4	3	4	3	1
B2	2	3	4	3	4	3	1
B3	3	4	5	4	5	3	1
C1	3	3	4	3	4	2	1
C3	3	3	4	3	4	2	1
D1	NC	NC	NC	NC	NC	NC	NC
D2	2	3	4	3	4	3	1
D3	2	4	5	4	5	3	1
D4	NC	NC	NC	NC	NC	NC	NC
E1	NC	2	2	2	2	2	1
E2	NC	2	2	2	2	2	1
E3	NC	2	2	2	2	2	1
F1	3	2	3	2	3	2	1
F2	3	2	3	2	3	2	1
F3	3	2	3	2	3	2	1
G1	3	4	5	4	5	3	1
H1	NC	3	5	3	5	3	1
H2	NC	3	4	2	4	3	1
H3	NC	4	5	3	4	3	1
J1	NC	NC	NC	NC	NC	NC	NC
J2	NC	NC	3	NC	3	2	1
J3	2	3	4	2	3	2	1
J4	NC	NC	NC	NC	NC	NC	NC

NC=Non –combustible material only SP=Protected by a sprinkler system USP=Not protected by a sprinkler system
NOTE: Table refers only to those areas actually used for the occupancies given.

TABLE 69—MINIMUM NUMBER OF EXIT DOORS PER ROOM POPULATION
(p. 396(2))

Number of persons	Minimum number of exit doors
50 to 240	2
241 to 500	3
501 to 750	4
751 to 1000	5
Over 1000 person	6

TABLE 70—WIDTH OF FIRE ESCAPE ROUTES
(p. 399(9), 401(7))

Maximum number of persons	Minimum width (mm)
120	1100
130	1200
140	1300
150	1400
160	1500
170	1600
180	1700
190	1800
200	1900

TABLE 71—COLOUR CODING OF FIRE HYDRANTS BONNETS
(p. 412(17))

Bonnet Colour	Litres per Minute
Green	greater than 4,000
Orange	2,000 - 4,000
Red	less than 2,000

TABLE 72—PROVISION OF PORTABLE FIRE EXTINGUISHERS
(p. 414(1)(2), 415(2))

Classification of occupancies	Number of portable fire extinguishers relative to floor area
A1, B1, D1, D2, H2, J1, J2, J3	1 per 100m ²
A2, A3, A4, B2, C1, C2, D3, E1, E2, E3, F1, F2, F3, G1, H1,	1 per 200m ²
A5, B3 D4, H3, J4	1 per 400m ²

TABLE 73—CLASSIFICATION OF FINISHING MATERIALS ACCORDING TO
FIRE INDICES
(p. 436)

Class	Maximum values			
	Spread of flame index, If	Heat contributed Index, I	Smoke emitted Index, Is	Surface fire Index, F
1	0.1	0.1	0.2	0.1
2	0.7	0.8	1.0	0.6
3	1.5	1.7	2.0	1.2
4	3.5	3.8	4.0	2.9
5	5.5	5.8	6.0	4.5

TABLE 74—CLASSIFICATION OF FLOOR COVERINGS ACCORDING TO FIRE
INDICES
(p. 437)

Class	Maximum values			
	Spread of flame index, If	Heat contributed Index, I	Smoke emitted Index, Is	Surface fire Index, F
1	0.2	0.2	0.15	0.1
2	1.0	0.9	0.9	0.7
3	2.1	2.1	2.1	1.7
4	3.9	3.9	3.9	3.3
5	5.0	5.0	5.0	4.5

TABLE 75—MINIMUM WIDTH OF CARRIAGEWAY AND FOOTPATHS-
INDUSTRIAL AND MIXED-USE AREAS
(p. 497(2))

Type of road	Width of the Carriageway	Width of Footpath
Major	7.5 m	3.0 m
Minor	7.0 m	2.75 m

TABLE 76—MINIMUM WIDTH OF CARRIAGEWAY AND FOOTPATHS-
PRIVATE ROADS
(p. 498(1))

Type of road	Width of the Carriageway	Width of Footpath
Major	7.0 m	2.75m
Minor	5.5m	2.0m

TABLE 77—WIDENING OF CARRIAGEWAY
(p. 506)

Width of Carriageway	Permitted radius of curve at centre line	Minimum widening
6.0m or less	Less than 18.0m	1.2m
	18.0 m to 24m inclusive	1.0m
	Over 24.0m	0.6m
More than 6.0m	Less than 18.0m	1.0m
	18.0 m to 24.0m inclusive	0.6m
	Over 24.0m	0.3m

SECOND SCHEDULE

FIGURES

FIGURE 1—GARAGE DIMENSIONS
(p. 37(1))

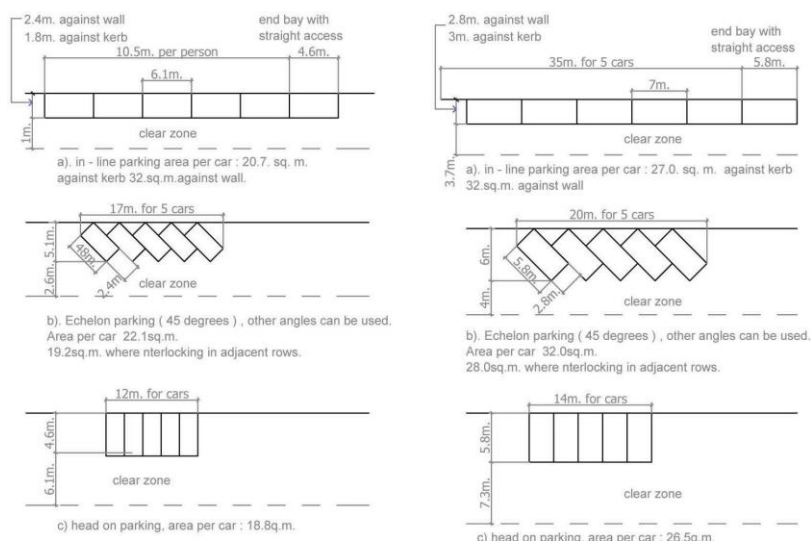


FIGURE 2—MINIMUM DIMENSIONS FOR GARAGES
(p. 37(2))

Single Parking. Double Parking

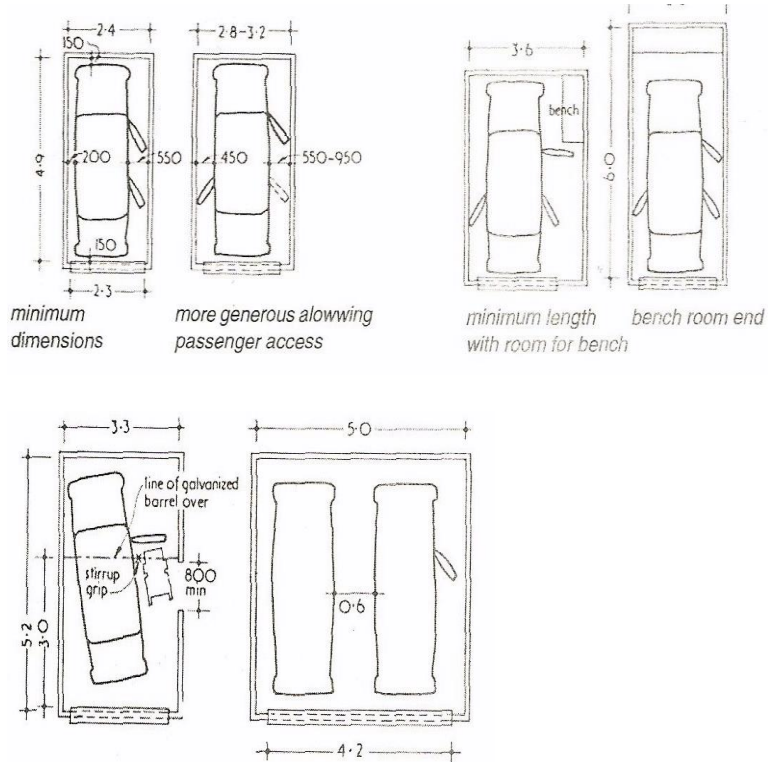
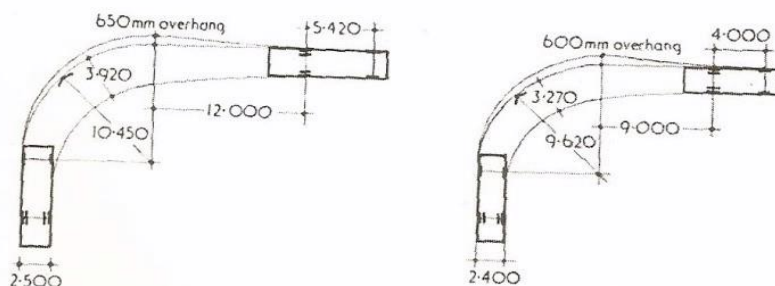


FIGURE 3—TURNING CIRCLES FOR VEHICLES

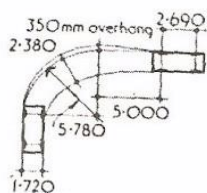
(p. 37(3))

Large lorries, buses, fire tenders, large PSV vehicles (See Figure 24)

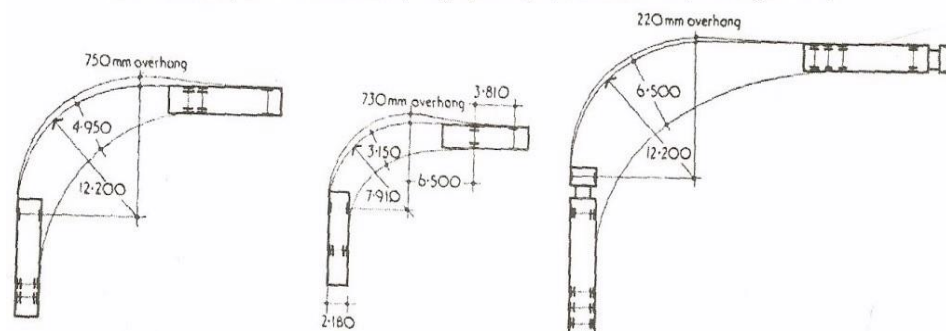
commercial vehicles turning
through 90 degrees
pantechicon

refuse collection vehicle

External circulation

Geometric characteristics of typical
private car

Small lorries, small PSV buses, large pick-ups, ambulances (See Figure 23)



medium commercial vehicle

fire appliance

largest commercial vehicle

FIGURE 4—GUARDING DESIGN
(p. 40(2))

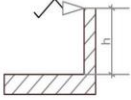
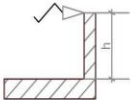
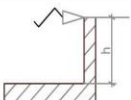
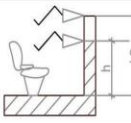
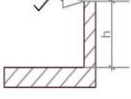
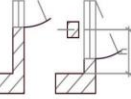

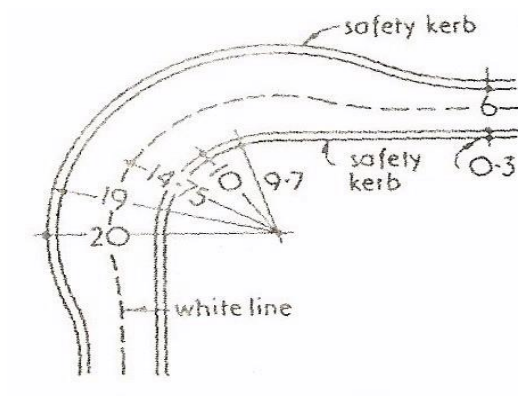
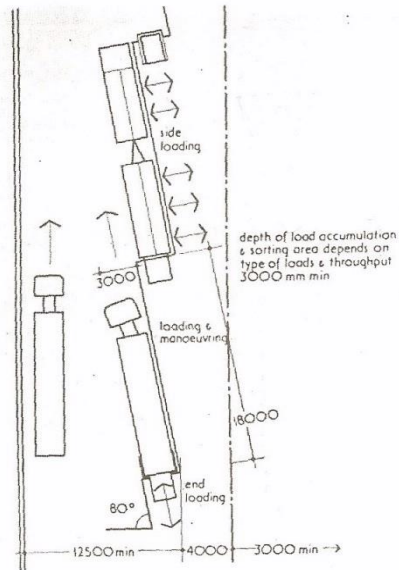
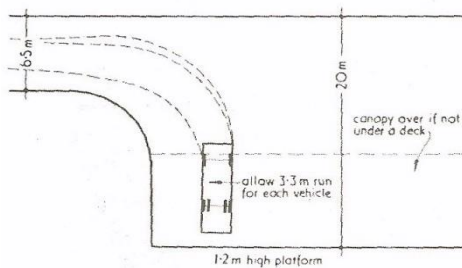
Building Category and Location		Strength.	Height.(h)	
Single family dwellings	Stairs , landings , ramps , edges of roof	0.36KN / m.	900mm. for all elements	
	External balconies and edges of roof	0.74KN / m.	1100mm.	
Factories & Ware Houses (light traffic).	Stairs , ramps.	0.36KN / m.	900mm.	
	Landings and edges of floor.	0.36KN / m.	1100mm.	
Residential, Institutional, Educational, Office, and Public Buildings	All locations.	0.74KN / m.	900mm. for flights other wise 1100mm.	
Assembly	530mm.in front of fixed seating.	Refer to BS 6399 Part 1.	800mm.(h1)	
	All other locations.		900mm. for flights elsewhere 1100mm.(h2)	
Retail	All locations.	1.5KN / m.	900mm. for flights other wise 1100mm.	
All buildings	At opening windows except roof windows in loft extensions , see approved document B1, Diagramm 4.		800mm.	
	At glazing to changes of level	To Provide containment	below 800mm.	

FIGURE 5—FINGER DOCK FOR LARGE VEHICLES
(p. 46)

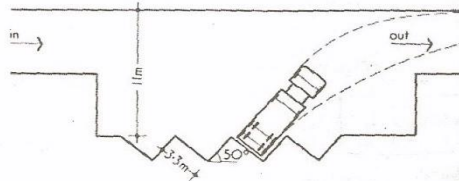




Finger dock - where manoeuvring depth is limited and side loading is required as well as end loading. Very fast turn-round times are possible although capacity is small.



Minimal loading docks. Appropriate for: 1 limited number of vehicles per day



2 extremely high land costs (as in city centres) or 3 other physical restraints.

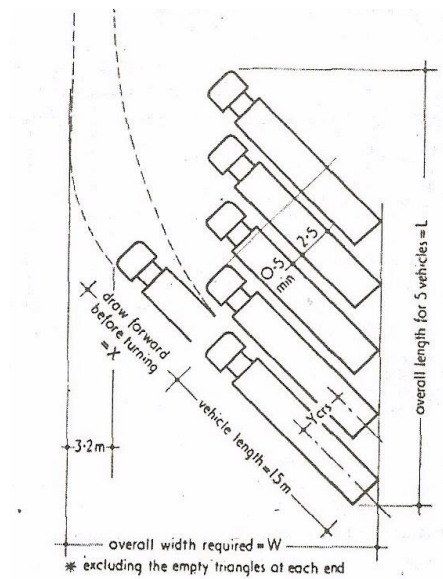


FIGURE 6—MEASUREMENT OF FLOOR PLAN AREA
(p. 88(3))

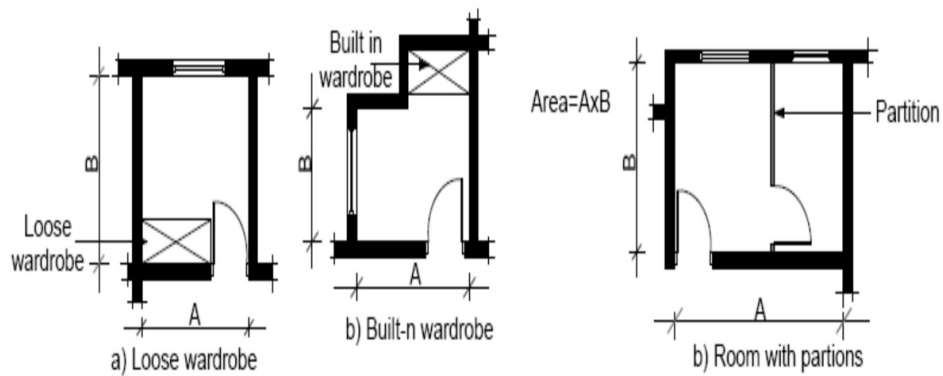


FIGURE 7—ROOM HEIGHT
(p. 89(1)(3))

MINIMUM FLOOR TO CEILING HEIGHT

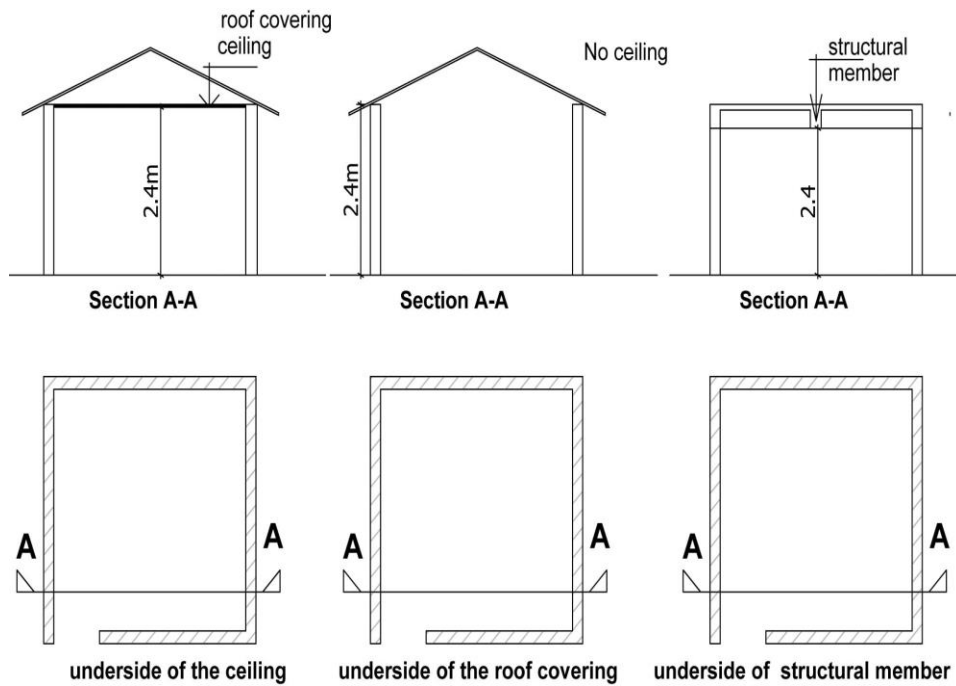


FIGURE 8—ZONE OF SPACE WITH OPENING DIVIDED INTO PORTIONS
(p.137(2))

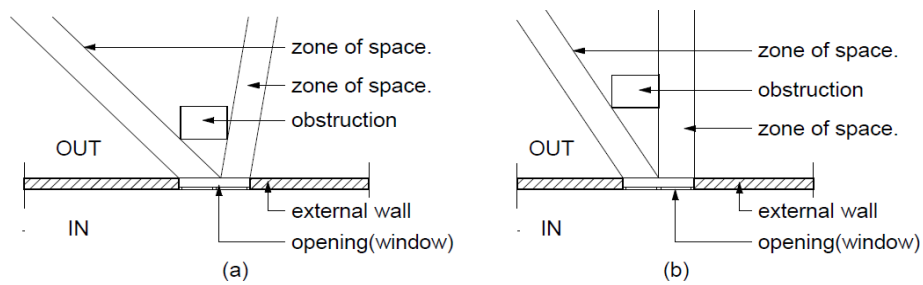
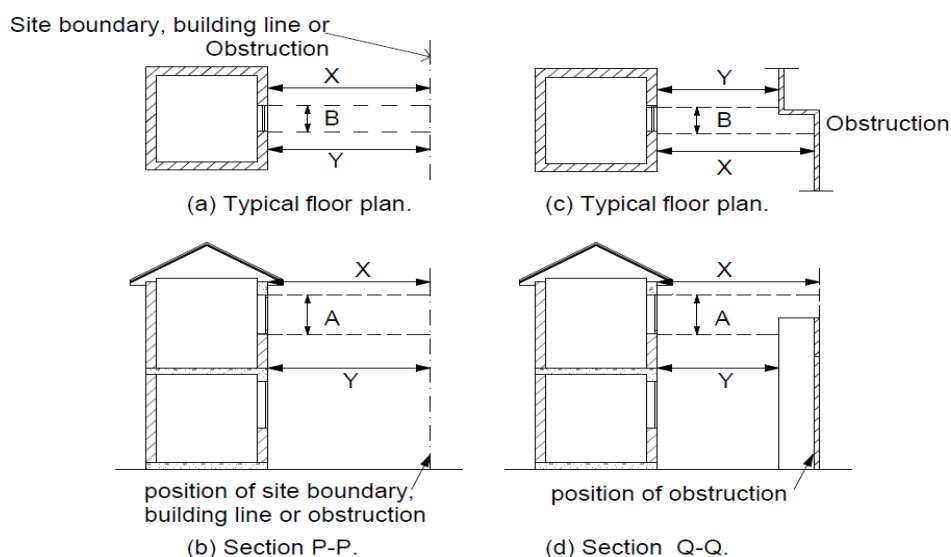


FIGURE 9—LENGTH OF ZONE OF SPACE

(p. 137(6))



(a) Typical floor plan.

(c) Typical floor plan.

position of site boundary,
building line or obstruction

(b) Section P-P.

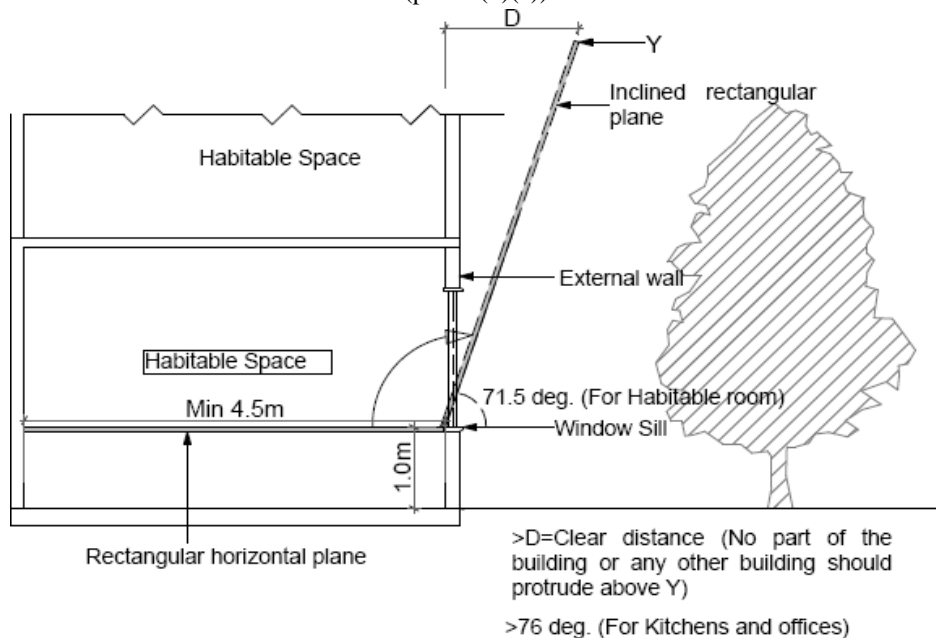
position of obstruction

(d) Section Q-Q.

In all cases the length of the zone of space is $\frac{X+Y}{2}$

FIGURE 10—MINIMUM REQUIREMENTS FOR WINDOW FACING OBSTRUCTION

(p. 144(1)(c))



Habitable Space

Habitable Space

Min 4.5m

1.0

Rectangular horizontal plane

Inclined rectangular plane

- External wall

eg. (For Habitable room)

-Window Sill

>D=Clear distance (No part of the building or any other building should protrude above Y)

>76 deg. (For Kitchens and offices)

FIGURE 11—MINIMUM REQUIREMENTS WHERE WINDOW OPENS TO AN AREA BOUNDED ON THE SIDE OPPOSITE THE WINDOW BY A BOUNDARY (p. 166(1))

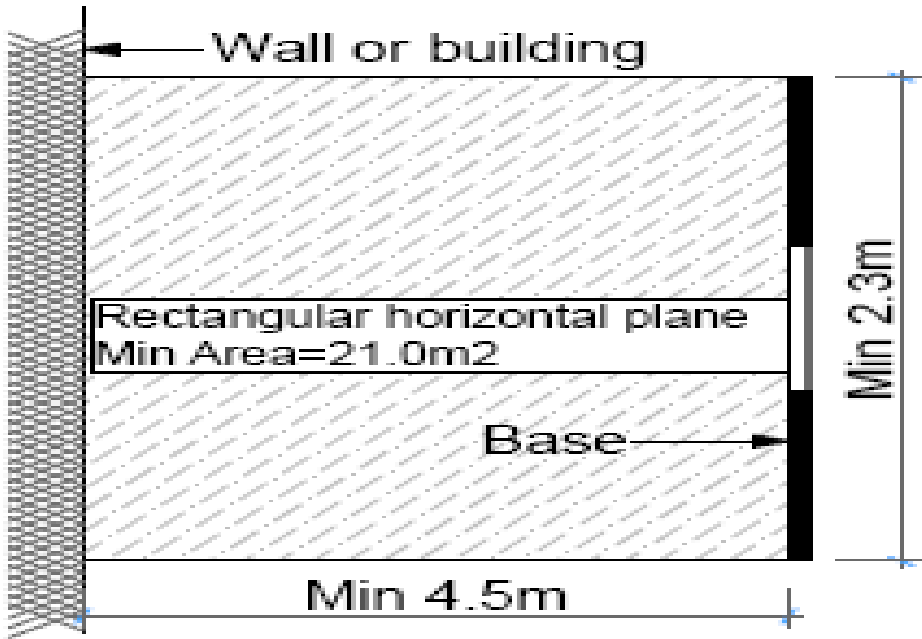
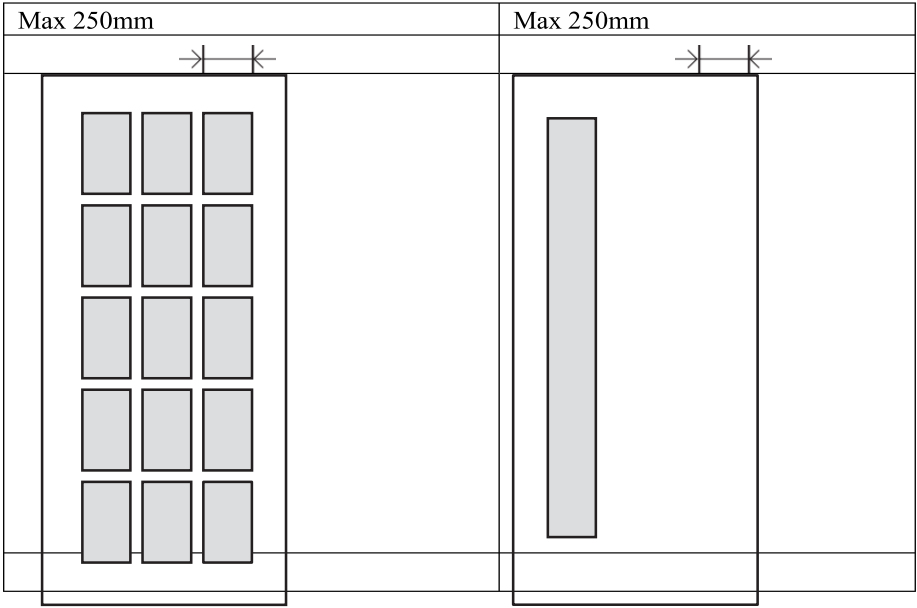


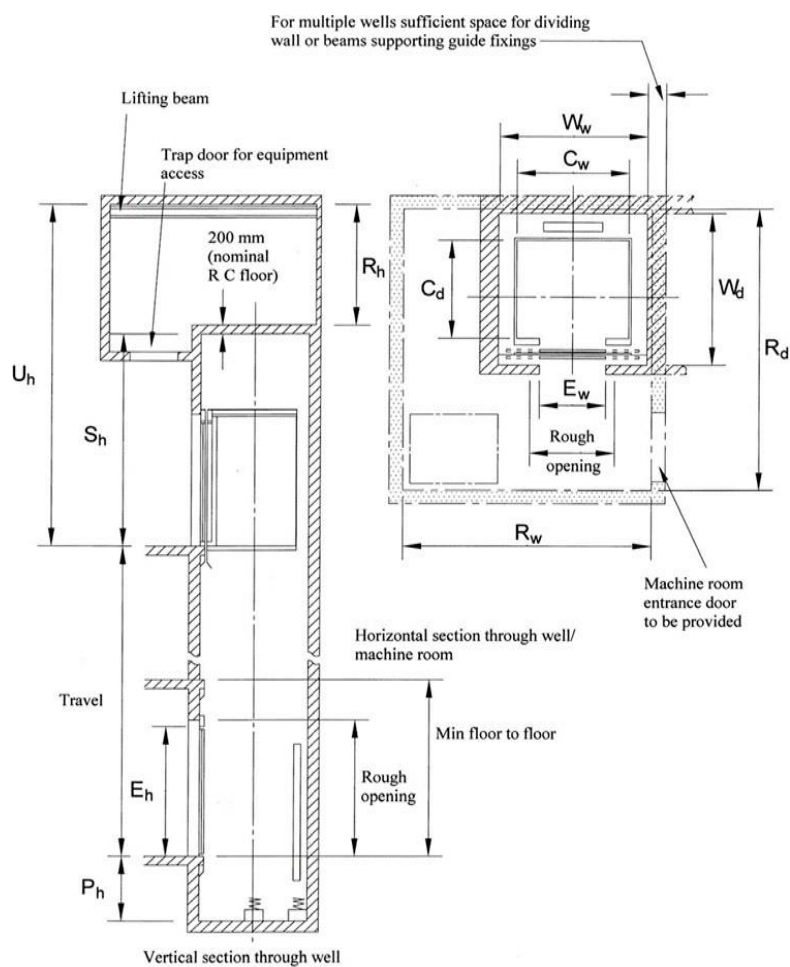
FIGURE 12—DIMENSIONS AND AREAS OF SMALL PANES (p. 178(4))



Note: Maximum area of single pane not to exceed 0.5m.

Small panes of annealed glass should not be less than 6mm in thickness

FIGURE 13—LIFT WELL ENCLOSURE DIMENSION
(p. 219(2))



Made on the 20th December, 2023.

ALICE WAHOME,
Cabinet Secretary for Lands,
Public Works, Housing and Urban Development.

