

*Section (iii)—Mechanical Ventilation*

36. AIR-CONDITIONING.—(1) Where permanent air-conditioning is intended the relevant regulation dealing with natural ventilation, natural lighting and heights of rooms may be waived at the discretion of the Authority.

(2) Consideration to the waiver of the relevant regulation will only be given if in addition to the permanent air-conditioning system there are provided alternative approved means of ventilating the air-conditioned rooms.

(3) A minimum number of air changes per hour for any one type of accommodation shall be provided to the satisfaction of the Authority.

37. MECHANICAL VENTILATION.—In lavatories, W. Cs., and bathrooms, where permanent mechanical ventilation is provided to the satisfaction of the Authority the relevant building regulations dealing with the natural ventilation and natural lighting will not apply.

*Section (iv)—Space Requirements Inside Buildings*

38. MINIMUM FLOOR AREAS, RESIDENTIAL BUILDINGS.—(1) No habitable room shall have a floor area of less than 100 sq. ft. provided that if the number of rooms in a building exceeds four, the area of one habitable room may be 87 sq. ft.

(2) The minimum width of a habitable room shall be 9 ft. 4-in.

(3) The minimum floor area of kitchens shall be 45 sq. ft. with a minimum width of 5 ft.

39. MINIMUM FLOOR AREAS: SHOPS.—The minimum floor area of a shop shall be 100 sq. ft., with a minimum width of 8 feet.

40. MINIMUM FLOOR AREAS.—In all types of buildings the minimum areas and widths of latrines, W. Cs. and bathrooms shall be:

	<i>Minimum area</i>	<i>Minimum width</i>
Latrine or W.C.	.. 12 sq. ft.	3' 0"
Bathroom	.. 15 sq. ft.	3' 0"
Combined W.Cs., and bathroom	.. 24 sq. ft.	3' 0"

41. MINIMUM HEIGHT OF ROOMS.—The minimum clear height of rooms shall be:—

(1) Residential Buildings:

Habitable rooms . . . 9' 7"

Kitchens, bathrooms, W. Cs. Latrines . . . 8' 6"

Garages and proches . . . 7' 6"

(2) Schools: The minimum height of rooms used for teaching shall be 12 feet.

(3) Hospitals, Maternity and Nursing Homes: The minimum height of rooms used to accommodate patients shall be 12 feet.

(4) Factories and Workshops: The minimum height of all working areas shall be 12 feet.

(5) Place of Assembly: The minimum height of rooms shall be 12 feet.

(6) Any other type of building including shops: The minimum height of room shall be 10 feet.

(7) Basements, Cellars, Vaults: The minimum height of any basement, cellar or vault shall be 7 feet 6 inches: Provided that except as otherwise permitted by a zoning regulation, no basement, cellar or vault shall be constructed in a building except with the previous written approval of the Authority.



(8) **Mezzanines and Lofts:** The minimum height of rooms in mezzanines and lofts shall conform to the height applicable to the buildings in which they are being provided with the exception of shops where the height may be reduced to seven feet six inches provided that:—

- (a) no mezzanine or loft shall be permitted in shops having a height of less than 16 feet from floor to ceiling;
- (b) the total mezzanine or loft area in any shop shall not exceed one-third of the total floor area of the shop;
- (c) the underside of every mezzanine or loft shall not be less than 8 feet above the floor of the shop;
- (d) in no case shall a mezzanine or loft be permitted within 6 feet from the front wall of the shop;
- (e) every such mezzanine or loft shall be open except for a railing not exceeding 4 feet in height;
- (f) every such mezzanine or loft shall be accessible by a ladder or a staircase of non-inflammable material and located inside the shop.

(ix) **Minimum headroom:** The minimum head room under beams and lintels shall be 6 feet and 3 inches.

*Section (v)—Means of Escape in case of Emergency*

42. **MEANS OF ESCAPE IN CASE OF EMERGENCY:**—(1) All means of escape from a building including exit ways, corridors, stairs, etc., should permit unobstructed access to a street or to an open space or to an adjoining building or roof from where access to the street may be obtained;

The Authority deals with each case on its merits after full consideration of the circumstances. Nothing contained in regulation 43 must be taken as in any way derogating from the powers of the Authority to secure reasonable and adequate means of escape in case of emergency.

(2) **ASSESSMENT OF OCCUPATION.**—As a guide to assessing the requirements for means of escape, the population of various portions of buildings, the number of persons and the population density (where not specifically stated or shown on layout or seating plans) the following is the basis of calculation:—

One person per:

5 square feet for a closely seated audience.

5 square feet of circulating gangways leading upto or provided between on the sale stalls or counters in bazars or retail trade premises frequented by persons in large numbers:—

6 square feet in dance halls.

12 square feet in restaurants.

40 square feet in factories and workrooms.

50 square feet in shops and showrooms.

100 square feet in offices.

300 square feet in warehouses.

(3) All buildings shall have windows on the street elevation within convenient reach and of adequate shape and size to enable persons to escape in case of emergency.

43. **CLEAR WIDTHS OF EXIT WAYS.**—(1) The clear widths referred to in this regulation shall mean the unobstructed and clear width of the staircases between finished wall surface or face of stringer beams in the case of stair-wells. This width shall apply (except where specifically laid down) to all corridors and passages leading to the staircases and from the staircases to the exits and shall also apply to the exits. There shall be no projection inside the "clear width" of any corridor, passage, stairway or ramp (other than handrails) at a level lower than 6' - 9" above the floor or above any stair.



Every exit way shall open directly on to an open space or a porch leading to a street and shall be easily accessible therefrom. Doors in exit ways shall open in the direction of escape.

(2) **Clear widths of staircases.**—In buildings where the floors above the ground floor are occupied by more than 250 persons, two or more staircases shall be provided according to the requirements.

(3) **Commercial and business premises, departmental stores and shops.**—For buildings not more than two storeys high and accommodating on the first floor not more than 50 persons; one staircase of a width not less than 3'-6" shall be provided. In all other cases an additional means of escape must be provided of a minimum width of 2'-6".

The distance from any point to the nearest staircase shall not exceed 100 feet.

Passages between rows of shops or stalls shall conform to the following minimum widths:—

Length of passage	Shop or stalls	
	on one side only	on both sides
Upto 50 feet.	5 feet.	7 feet.
Upto 150 feet.	6 feet.	8 feet.
More than 150 feet	7 feet.	9 feet.

(4) **Factories.**—At least two staircases shall be provided, one of a minimum width of 3'-0" and the other of a minimum width of 2'-6".

The distance from any one point to the nearest staircase shall not exceed 100 feet.

(5) **Warehouses.**—For buildings not more than two storeys high and accommodating not more than 20 persons at first floor level, one staircase of minimum width of not less than 3'-6" shall be provided.

The normal requirements for staircases and exit ways shall be increased at the discretion of the Authority if the goods stored present a special fire hazard.

The distance from any point to the nearest staircase shall not exceed 100 feet.

(6) **Hospitals.**—The entrance to any ward or room used for accommodating patients shall be within 70 feet from the nearest staircase. From each such ward or room there shall be access to a secondary staircase. The width of all staircases shall be not less than 4'-6" and the width of corridors and passages leading to such staircases shall not be less than 6 feet.

(7) **Schools and places of public assembly.**—Exit ways, viz., exit doors, staircases, corridors, passages and exits to a street or large open space shall be provided for every floor or tier as follows:—

Occupation	Two exit way
Upto 200 persons	3'-6" each
Upto 300 persons	4'-0" each
Upto 400 persons	4'-6" each
Upto 500 persons	5'-0" each

An additional exit way of 5 feet shall be provided for each additional 250 persons or part thereof. Additional exits from stages, where there is a fire curtain, shall be provided to the satisfaction of the Authority.

(8) **Places of public assembly (additional requirements):**—

(a) A clear passage or gangway not less than 4 feet wide shall be provided around the stalls and balcony provided that—

if the passage or gangway on the balcony leads to exits of equal width the rear passage may be omitted; and



no passage is necessary  
at the front of the balcony.

- (b) Where considered necessary by the Authority gangways not less than 4 feet wide running parallel to the seating shall be provided.
- (c) Gangways not less than 4 feet wide shall be provided intersecting the rows of seating in such a manner that no seat shall be at a greater distance than 7 seats from a gangway measured in the line of seating.
- (d) Steps shall not be used to overcome difference in level in a gangway unless the slope of such gangways exceed 1 in 10.
- (e) Where steps of a pitch exceeding 30 degrees or ramps of a slope exceeding 1 in 10 are provided in gangways flanking the seating, suitable hand-rails shall be provided.
- (f) The treads of steps in gangways shall have a nonslip surface and the edges of such steps shall be illuminated at step level.
- (g) Guard rails not less than 3 feet 3 inches above floor level shall be provided at the foot of gangways in circles and galleries or areas where the incline exceeds 15 degrees.
- (h) The slope of the tiers shall not exceed 30 degrees.
- (i) Lobbies, corridors or passage ways intended for the use of the audience outside the auditorium shall be at least 6 feet wide.
- (j) All exit doors and doors through which the public pass on the way to open air shall be without locks, bolts or other fastenings while the public are in the building; except that doors used for exit only may be fitted with panic bolts.
- (k) Panic bolts shall be not more than 3 feet nor less than 2 feet 6 inches from the ground.
- (l) Only panic bolts which are operable by horizontal thrust shall be employed.
- (m) Turnstiles, if installed, shall be arranged clear of the line of exit, and shall not be included in the calculation of exit width.
- (n) Every external doorway used by the public which is necessarily locked when the public are not in the building, and every collapsible gate shall, during the whole time that the public is present, be made capable of being locked in the fully open position in such a way that a key is required to release it.
- (o) No ticket window shall open on to any public street and cause obstruction thereon.

(9) **Staircases, general structural requirements:**—The design of staircases and the provisions of handrails shall comply with regulations 67-71.

### CHAPTER III—BUILDING STRUCTURES

#### *Section (i)—Sites*

44. **GROUND FLOOR LEVEL.**—(1) In the absence of an effective storm water drainage system the ground floor of every building abutting on a street shall be raised above the level of the verandah way or foot-way and shall not be less than two feet above the level of the crown of the adjacent road or street.

45. **BOUNDARY WALLS.**—(1) The owner of every building may and if so required by the relevant zoning regulation shall provide a boundary wall or fencing on the boundaries of his plot of heights as specified in the zoning regulation.

(2) Boundary walls which abut on a public street, pathway or place which the public are allowed to use, shall not consist of fencing in which is used barbed wire or any material likely to cause injury to persons or animals.

(3) Every boundary wall or fencing shall be maintained in good condition and repair so long as the building on the plot exists.





*Section (ii)—Foundations*

46. GROUND TO BE TESTED.—The owner shall cause tests to be made to prove the nature of the ground as required by the Authority.

47. FOUNDATIONS NEAR DRAINS.—Where a building is to be erected near a drain or an excavation at a distance less than the depth of the said drain or excavation the owner shall satisfy the Authority that the foundations of the buildings are carried down to a level safeguarding its stability.

48. FOUNDATIONS OF WALLS AND PIERS.—(1) Unless supported on a beam every load-bearing wall or pier or the footing thereof, if any, shall rest on concrete and such concrete shall extend horizontally beyond each of the sides and end faces of the wall or pier to a distance of not less than six inches.

(2) The thickness of concrete foundation shall be taken at an angle of dispersion of not less than 45 degrees.

(3) If constructed in reinforced concrete the foundation shall comply with the requirements of the building regulation for reinforced concrete.

*Section (iii)—Load-bearing requirements*

49. LOAD-BEARING STRUCTURES GENERALLY.—(1) The load-bearing structure of a building above the foundation shall be capable of safely sustaining and transmitting the dead load and imposed loads and the horizontal and inclined forces to which it may be subjected without exceeding the appropriate limits of stresses for the materials of which it is constructed and without undue deflection.

(ii) *Dead loads etc.* The dead load and imposed loads, including wind load, shall be calculated in accordance with the provisions of Schedule No. 2.

(iii) *Structural calculations:* Until such time as the relevant Pakistani Codes of practice and Standard Specifications have been drafted, structural calculations shall be based on British Codes of Practice and Standard Specifications (See Schedule No. 4).

(iv) *Permissible loads on masonry:*—Table of maximum permissible loads on masonry for guidance:—

Type of masonry	Limit of total permissible load in tons due to superincumbent weight and all other loads per sq. ft. of horizontal section area.
Ashlar or Masonry (1st Class) with local stone in lime mortar ..	15.0
Ashlar or Masonry (1st Class) with local stones in cement mortar (1:4) i.e., one part of cement to four parts of sand ..	18.0
Ashlar or Masonry (2nd class) with local stones in lime mortar ..	12.0
Ashlar or Masonry (2nd class) with local stones in cement mortar (1:4) ..	15.0
Burnt bricks (table moulded) in lime mortar ..	5.0
Burnt bricks (table moulded) in cement mortar ..	7.0

50. STRUCTURAL STEEL WORK.—Structural steel work shall be deemed to comply with regulation 49 (load-bearing structures generally), if —

- (a) the design and construction of the steel work are based upon the relevant recommendations of British Standard Code of Practice CP 113 "The structural use of steel in buildings", or
- (b) the steel work is designed and constructed in accordance with the relevant rules given in British Standard 449 "The use of structural steel in buildings"



51. STRUCTURAL WORK OF REINFORCED CONCRETE.—Structural work of reinforced concrete shall be deemed to comply with regulation 49 (load-bearing structures generally) if the design and construction are based upon the relevant recommendations of British Standard Code of Practice CP 114 “The structural use of normal reinforced concrete in buildings.”

52. STRUCTURAL WORKS OF TIMBER.—Structural work of timber shall be deemed to comply with regulation 49 (load-bearing structures generally) if its design and construction are based upon the relevant recommendations of British Standard Code of Practice CP 112 “Structural use of timber in buildings”.

53. WALLS, PIERS AND COLUMNS: MASONRY.—A wall, pier or column shall be deemed to comply with regulation 49 (load-bearing structures generally) if its design and construction are based upon the relevant recommendations of British Standard Code of Practice CP 111 “Structural recommendations for load-bearing walls”.

54. STRUCTURAL CALCULATIONS.—The owner shall submit structural calculations along with the designs.

*Section (iv)—Resistance to Weather and Damp*

55. ROOFS AND EXTERNAL WALLS.—Every roof and external walls, including any parapet, of any building in which people live or work shall be constructed to adequately resist the penetration of rain.

56. DAMP-PROOF COURSES.—(1) Every wall of a building shall be provided with a damp-proof course at a height of not less than 6 inches above the surface of the ground adjoining the wall and not higher than the level of the upper surface of the concrete or other similar solid material forming the structure of the floor.

(2) Where any part of a floor of the lowest or only storey of a building is below the surface of the adjoining ground and the wall or part of a wall of storey is in contact with the ground —

(a) the wall or part of a wall shall be constructed or be provided with a vertical damp-proof course so as to be impervious to moisture from its base to a height of not less than six inches above the surface or the ground; and

(b) an additional damp-proof course shall be inserted in the wall or part of a wall at its base.

(3) Where the floor of a building is, in the opinion of the Authority, subject to water pressure, that portion of the building below ground level shall be suitably water-proofed to the satisfaction of the Authority.

*Section (v)—Walls*

57. CONTAINING WALLS.—Every building shall be contained within its own walls or party walls which, together with all cross walls shall be constructed of bricks, stone, concrete (properly bonded and solidly built together with lime cement mortar or with cement mortar or with mud mortar) or other hard and non-inflammable materials.

58. UNDER-PINNING.—If under-pinning is required the owner or his agent shall give written notice to the Authority stating the method of under-pinning proposed to be used and shall obtain the written sanction of the Authority before proceeding with the work.

59. WALL THICKNESS FOR RESIDENTIAL BUILDINGS.—In the case of residential buildings the following specifications will hold good in case of every external wall and every party wall. In each case the thickness will be minimum:—

**I Bricks or stone**

(a) Height up to 12 ft.: Where the wall does not exceed 12 ft., in height (whatever its length), it shall be 9' thick for its whole height.

(b) Height upto 15 ft.: Where the wall exceeds 12 ft., but does not exceed 15 ft., in height (whatever its length), it shall be 13½' thick.



(c) Height upto 25 ft.: Where the wall exceeds 15 ft., but does not exceed 25 ft., in height, its thickness shall be as follows:—

(i) If the wall does not exceed 50' in length, it shall be 13½" thick for its whole height.

(ii) If the wall exceeds 30' in length it shall be 13½" thick below the top most storey if it comprises more than one storey, or if it comprises a ground floor only then 18" thick for a height of 15' above its base and in either case 13½" thick for the rest of its height.

(d) Height upto 35 ft: Where the wall exceeds 25 feet but does not exceed 35 feet in height, its thickness shall be as follows:—

If the wall does not exceed 30 ft., in length it shall be 18" thick from the base for the height of 2 storeys 13½" thick for the rest of its height.

(e) Height upto 45 ft: Where the wall exceeds 35' but does not exceed 45' height, its thickness shall be as follows:—

(i) If the wall does not exceed 30' in length, it shall be 18" thick from the base for the height of 2 storeys, and 13½" for the rest of its height.

(ii) If the wall exceeds 30' in length it shall be 22½" thick from the base for the height of one storey, then 18" thick for the height of the next 2 storeys and 13½" thick for the rest of its height.

II Concrete Blocks (Blocks of a mixed volume of one part of cement, 3 parts of sand, 6 parts of aggregate of minimum crushing strength of 400 lbs. per square inch.

	<i>Thickness.</i>
Single Storey Buildings:	9"
Buildings upto 30' in height: (length of wall not exceeding 30 feet):	
Ground floor	12"
Upper floors	9"
Buildings upto 45' in height: (length of wall not exceeding 30 feet):	
Ground floor	15"
Intermediate floors	12"
Top floor	9"

The thickness of every internal cross wall shall be at least two-third of the thickness prescribed for an external or party wall of the same height and length, provided that if such cross wall supports a load, the whole of such cross wall shall be of the thickness prescribed for an external or party wall and all cross walls shall be bonded to the main walls to which they abut.

The mortar used may either be mud or lime mortar or cement mortar of a mix one part cement and six parts of sand.

60. EXTERNAL PANEL WALL IN FRAMED BUILDINGS.—If a building is fully framed and no part of the panel wall sustains or transmits any load other than that due to its own weight and to wind pressure on its own surface, such panel wall may be of:

(a) 4-1/2 inches brick work reinforced with suitable expanded metal in every eight course, the panel not being greater than 16 feet in length and 11 feet in height, and suitably fixed to the frame-work. For a greater length or height the panel wall shall be 9 inches thick.

(b) 6 inches thick precast concrete blocks, the panel size being as for 4-1/2 inch brickwork. For a greater length or height the panel wall shall be 8 inches thick.

61. SPECIAL PANEL CONSTRUCTION OR CLADDING: (EXTERNAL WALLS).—Any other form of panel filling or cladding framed buildings not specified in these Building Regulations shall be subject to special sanction by the Authority.



*Section (vi)—Floors*

62. **STRUCTURAL STRENGTH; (SCHEDULE No. 2).**—Every floor shall be capable of sustaining adequately its own weight and any imposed loads which it is likely to be subjected to.

63. **NOTICE AS TO PERMISSIBLE LOADS ON FLOORS.**—

- (i) In every storey except where the floor is one used for residential purposes, there shall be exhibited by the owner, at each staircase, or at some other appropriate place, a notice, incised or embossed on metal, plastic or similar permanent material, in the following form, stating the imposed load for which the floor has been designed, letters to be at least 1/4 inch high:

<p><b>NOTICE</b></p> <p>This floor has been designed to sustain an imposed load of . . lbs. per square foot.</p>
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- (ii) Where floors of different rooms or different parts of floors have been designed for different imposed loads, a notice in the above form shall be suitably displayed in each room or one each part of the floor as the case may be, indicating the variations.

64. **STEEL, REINFORCED CONCRETE AND TIMBER.**—Where steel, reinforced concrete or timber is used in floor construction the design shall be in accordance with regulation 50 (Structural Steel Work), 51 (Structural work of Reinforced Concrete) and 52 (Structural Work of Timber) respectively.

65. **FLOOR FINISHES.**—Every floor shall be finished in a manner adequate for its intended use.

66. **IMPERVIOUS FLOORS.**—

(i) The floor of every factory and warehouse intended to be used for the manufacture or storage of articles for human consumption shall be constructed of impervious material.

- (ii) The floor of every garage shall be constructed of impervious material.

*Section (vii)—Staircases and Lifts*

67. **PITCH OF STAIRCASES.**—

(i) The rise shall normally not be more than 7 inches and the tread shall not be less than 9 inches.

(ii) In houses occupied by not more than one household 7-1/2 inch risers will be permitted.

68. **HANDRAILS.**—

(i) All staircases shall be provided with a handrail or handrails.

(ii) In non-residential buildings a handrail shall be provided on each side of the staircase when the staircase is 5 feet wide (clear) and over. Where a staircase is 10 feet wide or more, there shall be provided in addition a handrail down the centre of the stair.

69. **MAXIMUM FLIGHT.**—There shall not be more than 15 risers between each landing. A landing shall not be less than 3 feet in depth.

70. **WINDERS.**—Winders may be permitted in residential buildings other than blocks of flats.





71. LIMITATION IN THE USE OF TIMBER STAIRCASES.—

(i) Timber staircases are permissible only for residential buildings occupied by not more than one household.

(ii) All other staircases shall be of reinforced concrete or other non-inflammable material.

72. LIFTS.—Lifts shall be provided in buildings where the climbing height from the ground floor level to the top floor level exceeds 42 feet and 6 inches.

*Section (viii)—Roofs*

73. TIMBER.—

(i) **Framings:** Timber for roof construction shall be of adequate sizes and properly framed in accordance with regulation 52.

(ii) **Preservative:** All built-in or hidden roof timbers shall be protected against damp and insect attack by treatment with a suitable preservative.

74. STEEL AND REINFORCED CONCRETE.—Where steel work or reinforced concrete is used in roof construction the design shall be in accordance with regulations 50 and 51 respectively.

75. SPECIAL TYPES OF CONSTRUCTION.—Any other type of roof construction not specified in these Building Regulations shall require special sanction of the Authority.

76. ROOF COVERING AND DRAINAGE: On pitched roofs the following materials only may be used:—

Burnt clay or concrete tiles.

slates.

Metal or asbestos cement sheets.

Glass.

Other materials approved by the Authority.

The roof of a building (whether flat or not) shall be so constructed as to effectually drain to suitable and adequate channels, gutters, chutes or troughs.

77. ACCESS TO ROOF SPACE.—Access shall be provided to the space within a pitched roof where such space is enclosed by a ceiling.

78. LIGHTNING CONDUCTORS.—Lightning conductors if provided, shall be of a type approved by the Authority, and shall be earthed and fixed in a manner approved by it.

*Section (ix)—Refuse Chutes*

79. REFUSE CHUTES.—Refuse chutes shall be of a type approved by the Authority and shall conform to the following minimum requirements:—

(a) They shall be formed with glazed pipes or asbestos cement pipes of at least 12 inches internal diameter.

(b) All chutes shall be adequately ventilated at the top and shall be provided with suitable arrangements for flushing with water for the full length of the chute.

(c) All chutes shall discharge into a suitable moveable receptacle or receptacles of a size and pattern approved by the Authority.

(d) The chamber housing the receptacle at the foot of the chutes shall be drained and shall be adequately fly and vermin proof and shall open into the external air, and shall be lined throughout with glazed tiles.

(e) The opening into the chutes from each floor shall be fitted with a self-closing hopper type flap.



*Section (x)—Flues and chimneys*

80. CHIMNEYS.—(1) Every chimney included in a building shall be built on solid foundations and with footings similar to the footings of the wall against which such chimney is built and shall be properly bonded into such wall.

Provided that any such chimney may be built on sufficient corbels of brick, stone or other hard and incombustible materials if the work so corbelled out does not project from the wall more than the thickness of the wall measured immediately below the corbel.

Provided further that the chimney of an industrial and factory plant shall not be built nearer than 10 feet of the plot line.

(2) Chimney flues to be pargeted.—(a) The inside of every flue included in a building shall be properly rendered or pargeted as such flue is carried up unless the whole flue shall be lined with fire-brick or fire-proof piping of fire-clay at least one inch thick, and unless the spandrel angles shall be filled in so solid with brick work or other incombustible material.

(b) The back or outside of such flue, which shall not be constructed so as to form part of the outer face of an external wall, shall be properly rendered in every case where the brick work of such back or outside is less than nine inches thick.

(c) A flue connecting with a room intended for human habitation shall not connect with any other room.

(3) Fire brick lining.—Every flue included in a building and intended for use in connection with any furnace of copper, steamboiler or close fire constructed for any purpose of trade, business or manufacture, or in connection with any cooking range or cooking apparatus of such building when occupied as a hotel, tavern or eating house, shall be surrounded with fire-brick at least four and a half inches thick for a distance of ten feet at least in height from the floor on which such furnace of copper, steamboiler, close fire, cooking range or cooking apparatus may be constructed or placed.

81. FACTORY CHIMNEY SHAFTS: CONSTRUCTION.—(1) Regulations 81 to 84 shall apply to chimney shafts which are structurally independent and erected in connection with any factory or place in which steam, water or other mechanical power is to be employed.

(2) A shaft and its foundations shall be designed and constructed in accordance with the following provisions of this regulation.

(3) The appropriate limits of stress for the materials of which the shaft is constructed shall not be exceeded when the shaft is subjected to a horizontal wind pressure (as modified by the appropriate shape factor specified in the following Table) of—

- (a) 12 pounds per square foot if the height of the shaft does not exceed 40 feet;
- (b) 14 pounds per square foot if the height of the shaft does not exceed 50 feet;
- (c) 15 pounds per square foot if the height of the shaft does not exceed 60 feet;
- (d) 17 pounds per square foot if the height of the shaft does not exceed 80 feet;
- (e) 18 pounds per square foot if the height of the shaft does not exceed 100 feet;
- (f) 19 pounds per square foot if the height of the shaft does not exceed 120 feet;
- (g) 21 pounds per square foot if the height of the shaft does not exceed 140 feet;
- (h) 22 pounds per square foot if the height of the shaft does not exceed 160 feet;
- (i) 23 pounds per square foot if the height of the shaft does not exceed 180 feet;
- (j) 24 pounds per square foot if the height of the shaft exceeds 180 feet;

and the shaft shall be capable of resisting without overturning a wind pressure (as so modified) of one-and-a-half times that specified for its height in this paragraph.



TABLE

<i>Plan shape of structure</i>	<i>Factor</i>
Circular	.7
Octagonal	1.0
Square (wind perpendicular to diagonal)	1.0
Square (wind perpendicular to face)	1.3

(4) For the purposes of paragraph (3) of this regulation, the wind pressure shall be assumed to be acting uniformly over the whole height of the shaft, the total lateral force being taken as the product of the wind pressure and the maximum vertical projected area.

(5) The base of the shaft shall rest upon solid undisturbed rock, or upon some suitable foundation so constructed that when the shaft is subject to the wind pressure specified for its height and shape by paragraph (3) of this regulation the pressure on the ground under the foundation does not exceed the safe bearing capacity of the ground.

82. SHAFTS CONSTRUCTED OF BRICK-WORK.—(1) A shaft constructed of brickwork shall be deemed to be designed and constructed in accordance with paragraphs (3) to (5) of regulation 81 if it complies with the following provisions of this regulation:—

(2) The bricks shall be hard and well-burnt clay bricks, or sand lime bricks being bricks described as Class A in British Standard 187 and they shall be properly bonded and solidly put together with mortar.

(3) Where the horizontal section of the shaft is circular or in the form of a regular polygon, the external diameter or least width at its base shall be not less than one-twelfth of the height of the shaft.

(4) Where the horizontal section of the shaft is rectangular the lesser width at its base shall be not less than one-tenth of the height of the shaft.

(5) The thickness of the brick-work shall be not less than eight-and-a-half inches at the top of the shaft and for not more than twenty feet below the top, and shall be increased by not less than four inches for each additional twenty feet or part of twenty feet of the height of the shaft measured downwards.

(6) The shaft shall have a batter of not less than 2-1/2 inches in every ten feet.

(7) Any footings provided at the base of the shaft shall—

(a) project in every direction from the base for not less than two-thirds of the thickness of the brickwork of the shaft at the base;

(b) be in height not less than one and one-third times their projection;

(c) be either in regular offsets from the base or in one offset;

(d) be built solid to the level of the base.

(8) The footings or the base of the shaft shall rest upon a suitable and sufficient foundation.

(9) Where the footings or the base of the shaft rest upon cement concrete and the bearing capacity of the ground under the concrete is not inferior to that of firm clay, the requirements of the last preceding paragraph of this regulation shall be deemed to be satisfied if—

(a) the projection of the concrete in every direction from the base of the shaft is not less than one-and-a-half times the thickness of the brickwork at the base;

(b) the thickness of the concrete is not less than one and one-third times the projection of the concrete beyond the footings, or beyond the base if footings are not provided; and

(c) the concrete is composed of cement and well-graded aggregate in the proportion of one hundred and twelve pounds of cement to not more than twelve and-a-half cubic feet of well-graded aggregate.

(10) Where an opening is formed in the side of a shaft the sides of the opening shall be strengthened to offset any loss of strength due to the formation of the opening.



### 83. SHAFTS CONSTRUCTED OF MASONRY:

(i) A shaft constructed of cut stone masonry shall be deemed to be designed and constructed in accordance with paragraphs (3) to (5) of regulation No. 81 if it complies with the following provisions of this regulation.

(ii) Every such chimney shall be built of a diameter at the base of not less than one-twelfth of the height, and for a height of at least twenty feet from its base. Every such chimney shall be lined in the following manner, that is to say, the shaft shall be provided with an independent lining of fire-bricks, separated from the masonry enclosing the shaft by a cavity at least one inch in width and every such cavity shall be covered at the top with corbelled brick work.

(iii) The batter of every such chimney shall be not less than one-third of an inch to the foot.

(iv) Where the inside diameter of the chimney at the top does not exceed four feet and six inches, the thickness of the masonry shall be as follows:

(a) From the top of the chimney to the level of twenty-five feet below the top, it shall be twelve inches thick.

(b) From the level of twenty-five feet below the top of the chimney to the level of fifty feet below the top, it shall be eighteen inches thick,

(c) For each further space of twenty-five feet below the level of fifty feet from the top, the thickness shall be in like manner further increased to the extent of six inches.

(v) Where the inside diameter of the chimney at the top exceeds four feet and six inches, the thickness of the masonry shall be as follows:—

(a) From the top of the chimney to the level of twenty-five feet below top, it shall be eighteen inches thick.

(b) From the level of twenty-five feet below the top, it shall be two feet thick.

(c) For each further space of twenty-five feet below the level of fifty feet from the top, the thickness shall be in like manner further increased to the extent of six inches.

84. SHAFTS CONSTRUCTED OF REINFORCED CONCRETE:—Where reinforced concrete is used in chimney shaft construction the design shall be in accordance with regulation 51.

## CHAPTER IV—DRAINAGE AND SANITARY PROVISIONS

### Section (i)—Drainage

85. CONNECTION TO PUBLIC STORM SEWERS.—The house connection with the street sewer shall be effected through an inlet grating having openings of not more than 1-1/2-inch centre-to-centre and shall be carried out under the direction and to the satisfaction of the Engineer in charge from the Authority. Under no circumstances the internal storm drainage system shall be connected with the sanitary sewage system. The internal plumbing shall be done by a licensed plumber.

86. CONNECTION TO PUBLIC SANITARY SEWERS.—The house connection with the street sanitary sewers shall be effected through a service manhole to be located at an approved spot near the boundary line of the plot. The slope of the sanitary sewer upto this manhole shall be sufficient to allow a free flow and shall be carried out under the direction and to the satisfaction of the Engineer in charge from the Authority. Under no circumstances, the sewer carrying the night soil shall be connected with the main storm sewer system of the area. The internal plumbing shall be done by a licensed plumber.





87. CESSPOOLS, SEPTIC TANKS, SOAK PITS.—(1) Where no public sewer is in existence, all sullage water shall be connected to cesspools or septic tanks.

(2) Where no public sewer is in existence, all waste water may be connected to soak pits.

(3) Cesspools and septic tanks shall—

(a) be so constructed as to be impervious to liquid either from the outside or inside;

(b) be so sited as not to render liable to pollution any spring or stream of water or any well the water from which is used or likely to be used for drinking or domestic purposes subject to a minimum distance of 20 feet.

(c) a 4" or 6" ventilating shaft shall be provided in each septic tank for the removal of the poisonous gases. The outlet of the shaft shall be placed 3 ft. above the highest building in the surrounding area.

88. ROOFS AND BALCONIES.—The roof of every building and the floor of balconies abutting a street or constructed over a street shall be drained by means of gutters and down-pipes to the satisfaction of the Authority.

*Section (ii)—Sanitary Provisions*

89. (1) Residential.—

(a) Every dwelling shall have at least one latrine or W.C. and one bathroom.

(b) Single-room tenements shall have one latrine or W.C. and one bathroom per five tenements, subject to a minimum provision of two W.Cs. or latrines.

(c) In the case of servant quarters attached to dwelling houses one W.C. or latrine and one bathroom shall be sufficient for every five quarters.

(2) Hotels.—Hotels, boarding houses and guest houses;

For every ten bedrooms or less there shall be provided at least two W.Cs or latrines and two bathrooms.

(3) Dormitories.—For every 20 persons there shall be provided at least two W.Cs. or latrines and one bathroom.

(4) Offices, stores and factories.—Offices, departmental stores and factories.

For every 25 persons up to 100 there shall be provided one W.C. or latrine and one urinal and one additional W.C. or latrine plus one urinal for every 50 persons in excess of 100 persons.

**Ablution facilities:—**

One wash basin or equivalent washing trough space for 25 or less persons.

The above figures refer to staff only. If provision is to be made for public, this must be in addition to the above.

(5) Shops.—Shops and stalls—

Communal sanitary facilities shall be provided at the discretion of the Authority.

(6) Shops of a floor area of 400 sq. ft. and more shall have a minimum of one W.C. or latrine and one draw-off tap on the premises.

(7) Places of public Assembly.—Places of public assembly—

**Males —**

One W.C. for every 100 and two urinals for every 200 persons or part thereof.



**Female —**

One W.C. for every 100 persons or part thereof.

In each room provided for sanitary purposes there shall be at least one wash basin.

**(8) Schools: Schools —**

**Boys —**

Two W.Cs. and three urinals per 100.

**Girls —**

Five W.Cs. for the first 100 and 1 W.C. for each 25 or part thereof.

**Ablution facilities.—**

One wash basin or equivalent washing trough space per 25 pupils.

**(9) Hospitals: Hospitals —**

At least one W.C. one wash basin and one bathroom for every 10 persons (patients and staff).

**90. LATRINES, W.Cs. AND BATHROOMS.—Walls and floors —**

(1) All walls of W.Cs. and bathrooms shall be finished in cement mortar or other impervious material to a minimum height of 4 feet. All floors to W.Cs. and bathrooms shall be paved in concrete with cement rendering or other impervious material, laid in the case of bathrooms with proper falls to an approved outlet.

(2) Every latrine shall be constructed of brick, concrete or other impervious approved material.

(3) Where there is no water carriage system latrines shall be separated from the main buildings by cross ventilated passages not less than 3 feet wide or be accommodated in separate buildings.

*Section (iii)—Water Connections*

**91. SUPPLY OF WATER CONNECTIONS.—**(1) On application on Form A-3, the Authority will give water connection to the owner on payment of necessary charges in accordance with the extent and size of connection. The connection will be given at the boundary of the plot through a service manhole which would house the valve and meter. The water supply will be suitably measured for charging the water charges.

(2) The owner shall instal a non-retrun valve of a suitable quality in the water line leading into the house from the service manhole.

(3) The procurement, installation and control over water meters shall be governed by the regulations and orders which the Authority may issue, from time to time.

**CHAPTER V.—FIRE RESISTANCE AND FIRE PRECAUTIONS**

*Section (i)—Fire Resistance—General*

**92. PERIOD OF FIRE RESISTANCE.—**A structural part of a building shall be deemed to have the requisite fire resistance if it is so constructed as to have a period of fire resistance not less than the appropriate period specified in Schedule No. 3.

Until such time, as an appropriate Pakistan Standard Specifications Code has been drafted, the fire resistance of building materials shall be ascertained from British Standard 476: (Fire Tests on Building Materials).



*Section (ii)—Fire Resistance—Small houses.*

93. SMALL HOUSES, DEFINITIONS.—A “small house” for the purpose of these Building Regulations shall be a house of upto 18,000 cu. ft. capacity on not more than two storeys and occupied by one household and the servant quarters attached thereto.

94. EXTERNAL WALLS (SMALL HOUSES).—Every external wall of a small house shall comply with the following table:—

TABLE A

(1)		(2)
Distance of walls in feet from nearest boundary of premises		Appropriate requirements as to non-inflammability and fire resistance.
Not less than	Less than	
10	—	No requirement.
5	10	To be externally non-inflammable.
3	5	To be non-inflammable throughout.

95. SEPARATING WALLS (SMALL HOUSES).—A wall separating two small houses shall have fire resistance of one hour.

Where the external walls of small houses are of timber or other inflammable material, the walls separating such houses shall —

- (a) have a fire resistance of two hours;
- (b) extend not less than nine inches beyond outer surface of the external walls.

No inflammable material shall be built into a separating wall other than the ends of wooden joists or purlins which are properly protected by brick-work or other solid and non-inflammable material not less than four inches thick.

In every small house all load-bearing walls not already referred to in these Buildings Regulations shall have a fire resistance of half-an-hour.

*Section (iii)—Fire Resistance—Buildings other than Small Houses*

96. EXTERNAL WALLS (OTHER THAN SMALL HOUSES).—(i) The external walls of any building other than a small house shall be non-inflammable throughout and have a fire resistance of two hours.

(ii) Every external wall of a domestic or public building of one storey, not being a small house, shall comply with the requirements of Table: B.

TABLE B.

Capacity of building in cubic feet		Distance of wall in feet from nearest boundary of premises		Appropriate requirements as to non-inflammability and fire resistance
Not less than	Less than	Not less than	Less than	
—	18,000	10	—	No requirement.
		5	10	To be externally non-inflammable.
		3	5	To have a fire resistance of one hour.



**SCHEDULE No. 2—CALCULATION OF LOADING**

Dead Load 1. (a) In calculating dead load, the unit weight of the materials shall be deemed to be those specified in the table below:—

**TABLE 1—WEIGHTS OF MATERIALS**

Earth (in natural state or rammed) ..	112 lbs. per cubic ft.
Sand (wet) ..	125 „
Gravel ..	120 „
Granite in masonry ..	165 „
Brick work in cement mortar ..	120 „
Concrete (mass) ..	144 „
Concrete (reinforced) ..	150 „
Timber ..	50 „
Cement plaster 1" thick ..	10 lbs. per sq. ft.
Glass per 1" thickness ..	14 „
Asbestos cement sheeting ..	4 „
18 gauge galv. iron sheeting with bolts. ..	3 „

Other materials not specified above shall follow the values set out in B.S.S. No. 648.

(b) The dead load of any particulars, whereof the positions are not definitely located in the design of the building, shall be deemed to be a uniformly distributed load per square foot of the floor (or part of a floor on which the partitions are to be erected) of not less than 20 lbs. per sq. ft. or the actual calculated load whichever is the greater.

Superimposed 2. Load In all cases the superimposed loads to be provided for shall be as specified in Table II and for slabs forming parts of and for beams supporting such floors, roofs, stairs and landings, shall be either:—

—the loads specified in the third column of that table ;or

—the loads specified in the fourth column or the fifth column (as the case may be) of that Table; whichever shall be the heaviest.

**TABLE II—MINIMUM SUPERIMPOSED LOADS**

Class No.	Types of floors	Lb. per sq. ft. of floor area	Slabs lb. uniformly distributed over the span per ft. width	Beams lb. uniformly distributed over span.
(1)	(2)	(3)	(5)	(6)

(In this Table, a reference to a floor includes a reference to any part of that floor to be used as a corridor and "slabs" includes beams and ribs spaced not further apart than three feet between centres and "Beams" means all other beams and ribs).

1. Floors in dwelling houses of not more than two storeys designed for one occupation ..	30	240	1,920
2. Floors (other than those of Class No. (1) for residential purposes including dwelling houses of more than one occupation, tenements, hospitals, wards, bedrooms and private sitting rooms in hotels, dormitories ..	40	320	2,560





3. Office floors above the entrance floors; floors of light workrooms without storage	50	400	3,200
4. Floors of banking halls; office entrance floors and office floors below entrance floors; floors of classrooms in schools	60	480	3,840
5. Shop floors used for the display and sale of merchandise; work-rooms generally; garages for vehicles not exceeding 2-1/2 tons gross weight; places of assembly with fixed seating churches and chappels; restaurants, circulation space in machinery halls, power stations etc., where not occupied by plant or equipment,	80	640	5,120
6. Floors of warehouses, workshops, factories and other buildings or buildings of similar category for light weight loads; office floors for storage and filling purposes; places of assembly without fixed seating (public rooms in hotels, dance halls, etc.)	100	800	6,400
7. Floors of warehouses, workshops, factories and other buildings or parts of buildings of similar category for medium weight loads, floors of garages for vehicles not exceeding 4 tons gross weight	150		For garage floors only 1.5 maximum wheel load but not less than 2,000-lbs. considered to be distributed over a floor area of 2 ft. 6 inches square.
8. Floors of warehouses, workshops, factories and other buildings or parts of buildings of similar category for heavy weight loads; floors of book stores and stationery stores; roofs and pavement lights over basement projecting under the public foot path.	200	—	—
9. Flat roofs	30	240	1,920
10. Pitched roofs (where no access is provided to the roof)	15	—	—
11. Stairs and landings (lb. per sq. ft. of area measured horizontally)			
(a) Used in connection with floors of class No. (1)	30	—	—
(b) Used in connection with floor of class No. (2)	60	—	—
(c) Used in connection with floors of any other classes	100	—	—



3. (a) In calculating the total load on any column, pier, wall or foundation, the minimum superimposed loads for every floor specified in Table II may be deemed to be subject to the reduction specified in Table III.

TABLE III—REDUCTION OF MINIMUM SUPERIMPOSED LOADS

Number of floors carried by member under construction	Percentage reduction of minimum superimposed load.
1	0
2	10
3	20
4	30
5 or more	40

(b) The reductions specified in sub-paragraph (a) of this paragraph shall not apply with respect to:

- the floors of factories and workshop whereof the minimum superimposed load is less than 150 lbs. per square foot.
- the floors of warehouses, garages and any floor used for storage purposes.

(c) No building or part of a building shall with respect to any moving load, be deemed to be capable of safely sustaining and transmitting same, unless all proper provision to the satisfaction of the Authority has been made for all dynamic effects.

4. WIND LOADING.—Wind loading on a building shall be calculated on the basis of the recommendations of British Code of Practice CP3, Code of Functional Requirements of Buildings, Chapter V, Loading.



**SCHEDULE No. 3**  
**PERIODS OF FIRE RESISTANCE FOR CERTAIN ELEMENTS OF**  
**CONSTRUCTION**

**TABLE A (1)**  
**Walls and Partitions**

In this Table:—

Class I Aggregate means foamed 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.

Construction and Materials	Minimum thickness in inches (excluding plaster) for period of—					
	6 hours	4 hours	2 hours	1 hour	1/2 hour	
(1)	(2)	(3)	(4)	(5)	(6)	
<b>SOLID CONSTRUCTION:</b>						
Bricks of clay, concrete or sand lime: No Plaster	...	8½	8½*	8½**	4	4
Concrete Blocks:						
Class I Aggregate: No plaster	..			4	3	2½
Plastered at least 1/2 inch thick on each side				4	2½	2
Class 2 Aggregate:						
No plaster	..	—	—	—	4	3
Plastered at least 1/2 inch thick on each side,		—	—	4	3	2
Gypsum blocks:						
No plaster	..	—	—	4	3	2
Plastered at least 1/2-inch thick on each side		—	—	3	2	2
Wood wool slabs:						
Plastered at least 1/2-inch thick on each side		—	—	3	2	2
Reinforced concrete:						
Aggregate with reinforcement (in two layers in walls over 5 inches in thickness) in two directions spaced not further apart than 6 inch centres, the volume of which is not less than 0.2 per cent of the volume of the concrete, with minimum concrete cover of 1 inch	..	9	7	4	3	3
Plaster board:						
Supported at top and bottom edges in steel channels and plastered on each side at least 5/8-inch thickness with gypsum plaster		—	—	—	½	—



TABLE A (1) *contd*

(1)	(2)	(3)	(4)	(5)	(6)
<b>Glass bricks:</b>					
In panels not exceeding 40 square feet in area with expansion joints not less than 1/10-inch per foot width of the panel at each side of the panel, not less than 1/10-inch per foot of the height of the panel at the top of the panel ..	—	—	—	4	—
<b>HOLLOW BLOCK CONSTRUCTION:</b>					
<b>Clay blocks:</b>					
Plastered at least 1/2-inch thick on each side and shells not less than 3/4-inch thick ..	—	—	—	—	—
1 cell in each block and each block not less than 50 per cent solid ..	—	—	—	4	3
1 cell in each block and each block not less than 30 per cent solid ..	—	—	—	6	—
2 cells in each block and each block not less than 50 per cent solid ..	—	—	8½	4	—
2 cells in each block and each block not less than 30 per cent solid ..	—	—	—	6	—
<b>Concrete blocks:</b>					
Plastered at least 1/2-inch thick on each side and 1 cell in thickness ..	—	—	—	—	—
Class I Aggregate ..	—	8½	4½	3	2½
Class 2 Aggregate ..	—	—	—	8½	3
<b>Gypsum blocks:</b>					
<b>Not less than 70 per cent solid:</b>					
No plaster ..	—	—	4	3	2
Plastered at least 1/2-inch thick on each side ..	—	—	3	2	2

\*Where plastered at least 1/2-inch thick on each side with gypsum/vermiculite plaster not leaner than 1:2 and where the wall does not exceed 10 feet either in height or length, the thickness for this period may be 4 inches.

\*\*Where plastered at least 1/2-inch thick on each side and where the wall does not exceed 10 feet either in height or length, the thickness for this period may be 4 inches.





TABLE A (2)  
HOLLOW AND STUD PARTITIONS

Construction and Materials	Minimum thickness of plaster in inches on each face for period of—			
	4 hours	2 hours	1 hour	1/2 hour
(1)	(2)	(3)	(4)	(5)
<b>STEEL OR TIMBER STUDDING:</b>				
Plaster on metal or timber lathing: Portland cement plaster, portland cement-lime plaster or gypsum plaster	—	—	$\frac{3}{4}$	$\frac{1}{2}$
Plaster board with or without gypsum plaster: 3/8-inch thick plaster board on each side	—	—	—	3/16 (neat, single coat).
3/8-inch thick perforated plaster board on each side	—	—	$\frac{1}{2}$	—
Two 3/8-inch thick plaster boards on each side	—	—	—	—
1/2-inch thick plaster boards on each side	—	—	$\frac{3}{8}$	—
3/4-inch thick plaster board on each side	—	—	—	—



TABLE B  
F L O O R S

Construction and Materials	Minimum thickness in inches for				
	period of 4 hours	period of 2 hours	period of 1 hour	period of 1/2 hour	periods specified for small houses
(1)	(2)	(3)	(4)	(5)	(6)
<b>FILLER JOIST CONSTRUCTION:</b>					
Thickness of concrete:	6	5	4	3½	—
Concrete cover on bottom of joist	1	1	½	½	—
<b>SOLID REINFORCED CONCRETE CONSTRUCTION</b>					
(including flat slab construction and floors constructed of pre-cast inverted "U" channel or T-sections, without a ceiling or soffit):					
Thickness of concrete ..	6	5	4	3½	—
Concrete cover to reinforcement ..	1	½	½	½	—
<b>HOLLOW BLOCK FLOOR CONSTRUCTION:</b>					
(including floors constructed of pre-cast concrete units of box-section or I-section):					
Aggregate thickness of non-inflammable material .. (excluding ceiling finishes, if any)	5	3½	3	2½	—
Concrete cover to reinforcement ..	1	½	½	½	—
<b>STRUCTURAL TIMBER CONSTRUCTION:</b>					
(A) Plain edge boarding on timber joists not less than 1-1/2 inches wide with ceiling of:—					
(i) Timber lath and plaster—Thickness of plaster	—	—	—	—	5/8
(ii) Timber lath and plaster with plaster of minimum thickness of 5/8 inch covered on underside with plaster-board of thickness ..	—	—	—	½	—



TABLE B—contd.

(1)	(2)	(3)	(4)	(5)	(6)
(iii) Metal lath and plaster—thickness of plaster ..	—	—	—	$\frac{3}{8}$	—
(iv) One layer of plaster-board of thickness ..	—	—	—	—	$\frac{1}{2}$
(v) One layer of plaster-board of minimum thickness of $\frac{3}{8}$ inch finished with gypsum plaster of thickness ..	—	—	—	—	$\frac{1}{2}$
(vi) One layer of plaster-board of minimum thickness of $\frac{1}{2}$ -inch finished with gypsum plaster of thickness ..	—	—	—	$\frac{1}{2}$	—
(vii) Two layers of plaster-board of total thickness ..	—	—	—	1	$\frac{3}{4}$
(viii) One layer of insulating board of minimum thickness of $\frac{1}{2}$ -inch finished with gypsum plaster of thickness ..	—	—	—	—	$\frac{1}{2}$
(xi) Wood-wool slab 1 inch thick finished with gypsum plaster of thickness ..	—	—	—	$\frac{3}{16}$	—
(B) Tongued and grooved boarding not less than $\frac{3}{4}$ -inch (nominal) thickness on timber joists not less than 1-1/2 inches wide with ceiling of:—					
(i) Timber lath and plaster Thickness of plaster ..	—	—	—	—	$\frac{5}{6}$
(ii) Timber lath and plaster with plaster of minimum thickness of $\frac{5}{8}$ inch covered on underside with plaster-board of thickness ..	—	—	—	$\frac{3}{8}$	—
(iii) Metal lath and plaster—thickness of plaster ..	—	—	—	$\frac{5}{8}$	—
(iv) One layer of plaster-board of thickness ..	—	—	—	—	$\frac{3}{8}$
(v) One layer of plaster-board of minimum thickness of $\frac{1}{2}$ -inch finished with gypsum plaster of thickness ..	—	—	—	$\frac{3}{16}$	—



TABLE B—contd.

(1)	(2)	(3)	(4)	(5)	(6)
(vi) Two layers of plaster-board of total thickness ..	—	—	—	$\frac{7}{8}$	—
(vii) One layer of insulating board of minimum thickness of 1/2-inch finished with gypsum plaster of thickness ..	—	—	—	$\frac{3}{16}$	—
(vii) Wood wool slab 1 inch-thick finished with gypsum plaster of thickness ..	—	—	—	$\frac{3}{16}$	—
(C) Tongued and grooved boarding not less than 1 inch (nominal) thickness on timber joists not less than 7 inches deep by 2 inches wide with ceiling of:					
(i) Timber-lath and plaster — Thickness of plaster ..	—	—	—	$\frac{5}{8}$	—
(ii) Metal lath and plaster — Thickness of plaster ..	—	—	—	$\frac{5}{8}$	—
(iii) One layer of plaster-board of thickness ..	—	—	—	—	$\frac{3}{8}$
(iv) One layer of plaster—board of minimum thickness of 3/8 inch finished with gypsum plaster of thickness ..	—	—	—	$\frac{1}{2}$	—
(v) One layer of plaster-board of 1/2-inch finished with gypsum plaster of thickness ..	—	—	—	$\frac{3}{16}$	—
(vi) Two layers of plaster-board of total thickness ..	—	—	—	$\frac{3}{4}$	—
(vii) One layer of insulating board of thickness ..	—	—	—	—	$\frac{1}{2}$
(viii) One layer of installing of minimum thickness of $\frac{1}{2}$ inch finished with gypsum plaster of thickness ..	—	—	—	—	$\frac{1}{2}$
(ix) Wood-wool slab 1 inch thick finished with gypsum plaster of thickness ..	—	—	—	$\frac{3}{16}$	—





TABLE C  
Steel Columns and beams

In this Table:—

**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.

**HOLLOW PROTECTION:** Means that there is a void between the protective material and the steel. All hollow protection to column shall be effectively sealed at each floor level.

**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 1 lb. per square yard. In concrete protection the spacing of that reinforcement shall not exceed 12 inches in any direction.

Construction and materials	Minimum thickness of protection in inches for period of —			
	4 hours	2 hours	1 hour	1/2 hour
(1)	(2)	(3)	(4)	(5)
<b>SOLID PROTECTION:</b>				
Columns				
Reinforced concrete ..	2½*	2*	1	1
Solid bricks of burnt clay or sand lime ..	3	2	2	2
Solid blocks reinforced in every horizontal joint—				
(i) Foamed slab or pumice concrete ..	2½	2	2	2
(ii) Gypsum blocks ..	2	2	2	2
Sprayed asbestos ..	2	1	½	½
Beams:				
Reinforced concrete ..	2½**	2**	1	1
Sprayed asbestos ..	2	1	½	¼
<b>HOLLOW PROTECTION:</b>				
Columns:				
Solid bricks of burnt clay or sand lime reinforced in every horizontal joint ..	4½	3	2	2
Solid bricks of foamed slag or pumice concrete or gypsum reinforced in every horizontal joint ..	3	2	2	2
Moulded asbestos bound in position with nicrome wire not less than No. 16 S.W. G. in thickness, the wires to be sunk not less than 1/8-inch deep in the outer surface of the asbestos and the the grooves and all joints in the asbestos to be filled with refractory cement ..	2½	½	1	1
Portland cement plaster or Portland cement lime plaster on metal lathing ..	—	—	—	¾



TABLE C—contd.

Construction and Material	Minimum thickness of protection in inches for the period of:—			
	4 hours	2 hours	1 hour	1/2 hour
(1)	(2)	(3)	(4)	(5)
Portland cement plaster or Portland cement lime plaster on metal lathing with reinforcement over rendering coat ..	—	—	1	—
Gypsum plaster on metal lathing ..	—	—	$\frac{7}{8}$	$\frac{5}{8}$
Gypsum plaster on 3/8-inch gypsum plaster board with No. 16 S.W.G. wire bind at 4 inches pitch ..	—	—	$\frac{1}{2}$	—
Gypsum plaster on 3/4-inch gypsum plaster board with No. 16 S.W.G. wire bind at 4 inches pitch ..	—	$\frac{1}{2}$	—	—
Two layers of metal lathing plastered with gypsum plaster on each layer, each ..	$\frac{3}{4}$	—	—	—
Precast concrete consisting of 4 volumes of vermiculite to 1 volume of Portland cement, reinforced with expanded metal, wire mesh or with No. 16 S.W.G. wire binding at 4 inches pitch ..	—	—	1	—
<b>Beams:</b>				
Moulded asbestos bound in position with nicrome wire not less than No. 16 S.W.G., in thickness, the wires to be sunk in grooves not less than 3/8 inch deep in the outer surface of the asbestos and the grooves and all joints in the asbestos to be filled with refractory cement ..	$2\frac{1}{2}$	$1\frac{1}{2}$	1	1
Portland cement plaster or Portland cement lime plaster or metal lathing ..	—	—	—	$\frac{3}{4}$
Portland cement plaster or Portland cement lime plaster on metal lathing with reinforcement over the rendering coat ..	—	1	—	—
Gypsum plaster on metal lathing ..	—	$\frac{7}{8}$	$\frac{5}{8}$	—
Gypsum plaster on 3/8-inch gypsum plaster board with No. 16 S.W.G., wire binding at 4 inches pitch ..	—	—	$\frac{1}{2}$	—
Gypsum Plaster on 3/8-inch gypsum board supported on wood battens ..	—	—	—	$\frac{3}{16}$ (neat single coat)
Gypsum plaster on 3/4-in gypsum plaster board with No. 13 16 S.W.G. wire binding at 4 inches pitch ..	—	$\frac{1}{2}$	—	—
Precast concrete consisting of 4 volumes of vermiculite to 1 volume of Portland cement reinforced with expanded metal, wire mesh or with No. 16 S.W.G. wire binding at 4 inches pitch ..	—	—	1	—

\* The thickness of protection on any projecting cleat, projecting rivet head and the like need not exceed 1 inch.

\*\* The thickness of protection on the upper surface of the upper flange of an internal beam, and on any projecting cleat, projecting rivet head and the like need not exceed 1 inch.



**TABLE D**  
**Reinforced concrete columns and beams**

Construction and Materials	Minimum overall size of column in inches for period of —			
	4 hours	2 hours	1 hour	½ hour
(1)	(2)	(3)	(4)	(5)
Reinforced concrete columns	—	12	10	8
Reinforced concrete columns with light 2 inch mesh reinforcement placed centrally in the concrete cover to longitudinal reinforcement	12	10	—	—
	Minimum concrete cover to reinforcement in inches for period of —			
	4 hours	2 hours	1 hour	½ hour
Reinforced concrete beams	2½	2	1½	1



**THE SCHEDULE**

Plot Area in Sq. Yds.	Frontage	Maximum Floor Area Ratio (F.A.R.)	Maximum No. of Storeys and Height		Maximum built-up area on ground	Minimum Yard				Type of Development
			No.	Height		Front	Side	Rear		
								Principal building	Ancillary building	
1	2	3	4	5	6	7	8	9	10	11
<b>SECTOR F-6</b>										
200-500	Less than 60'	0.60	2	30 ft.	50%	10'	--	10'	10'	Terraced dwelling houses.
501-1100	"	0.60	2	30 ft	40%	10'	10'	20'	10'	Semi-detached dwelling houses.
501-1100	60'	0.60	2	30 ft	40%	10'	10',10'	20'	10'	Detached dwelling houses.
1100 and above	60' & 70'	0.60	2	30 ft	40%	20'	10',10'	20'	10'	" " "
	80'	0.60	2	30 ft	40%	20'	15',15'	20'	10'	" " "
	90' & above	0.60	2	30 ft	40%	20'	20',20'	20'	10'	" " "
<b>SECTOR G-6</b>										
101-150	--	0.60	1	18 ft	60%	5'	--	10'	--	Terraced dwelling houses.
151-450	--	0.60	2	30 ft	50%	10'	--	10'	--	" " "
451-850	--	0.60	2	30 ft	40%	10'	10'	20'	10'	Semi-detached dwelling houses.
851 and above	60'	0.60	2	30 ft	40%	20'	10',5'	20'	10'	Detached dwelling houses
	70'	0.60	2	30 ft	40%	20'	10',10'	20'	10'	" " "
	80'	0.60	2	30 ft	40%	20'	15',15'	20'	10'	" " "
	90' & above	0.60	2	30 ft	40%	20'	20',20'	20'	10'	" " "
<b>SECTORS F-7 &amp; F-8</b>										
488-599	50'	0.60	2	30 ft	40%	10'	5',10'	10'	10'	Detached dwelling houses/ Flats/Apartments
600-999	60'	0.60	2	30 ft	40%	10'	10',10'	10'	10'	--do--
1000-1400	70'	0.60	2	30 ft	40%	20'	10',10'	20'	10'	--do--
1022-1800	80'	0.60	2	30 ft	40%	20'	15',15'	20'	10'	--do--
1350-1600	90'	0.60	2	30 ft	40%	30'	20',20'	20'	10'	--do--
1700-2300	100'	0.60	2	30 ft	40%	30'	20',20'	20'	10'	--do--

1. Rear yard for ancillary buildings on plots, the rear plot line of which abuts on the side plot line of another plot, shall not be less than 20' except when a verandah not more than 10' wide is constructed on that side.
2. In cases where minimum rear yard for ancillary buildings is permitted to be 10', part of yard (in between) ancillary building and rear plot line shall be paved.

Rawalpindi,  
Dated, the 20th January, 1967.

S. ASGHAR HUSSAIN RAZA  
P.M.A.S.  
Financial Adviser/Member,  
Capital Development Authority.







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