



**HONG KONG**

**CODE OF PRACTICE ON WIND EFFECTS**

## BUILDING (CONSTRUCTION) REGULATIONS

## CODE OF PRACTICE ON WIND EFFECTS

G.N. 1730/59.

Pursuant to regulation 24(2) of the Building (Construction) Regulations 1975, the following Code of Practice on Wind Effects is published—

1. The total horizontal force on a building shall be calculated as the basic wind pressure from Table I acting on the whole of the projected area of the building multiplied by the shape factor of the building from Table II. In determining building zone heights at Table I measurements shall be taken from the average ground level adjacent to the windward face of the building to the top of parapet. In the case of pitched roofs the basic wind pressure corresponding to a height halfway between the eaves and ridge levels shall be taken.

Wind Loads on a building as a whole.

TABLE I  
*Basic Wind Pressures in kPa*

Zone Height of Building above average ground level	Basic Wind Pressure "P"
From 0 to 10 m	1.2
From 10 to 25 m	2.0
From 25 to 60 m	2.4
From 60 to 100 m	2.8
From 100 to 140 m	3.4
140 m and above	4.3

2. (a) No allowance shall be made for the general or specific shielding of other building or structures nor of natural features.
- (b) The Building Authority may require higher basic wind pressures for very high or unusual buildings or for conditions of unusual exposure.
3. (a) The wind forces as detailed in Table I shall be applied to normal enclosed buildings generally rectangular in plan, and with a ratio of height to base-width (measured in the direction of the wind) not exceeding four.
- (b) For other cases the basic wind pressures in Table I shall be multiplied by the shape factors given in Table II in calculating the wind forces on the building as a whole.

Shielding & Unusual Exposures.

Shape Factors.

TABLE II  
Shape Factors

Plan shape of building or part of a building	Factor		
	Ratio of height to base-width		
	not more than 4	over 4 but less than 8	8 or more
Circular .....	0.6 P	0.65 P	0.7 P
Octagonal .....	0.8 P	0.9 P	1.0 P
Sq. (Wind perpendicular to diagonal) Sq. or rectangular (wind perpendicular to face) .....	0.8 P	0.9 P	1.0 P
	1.0 P	1.15 P	1.3 P

Wind effects on  
a building as  
a whole.

4. (a) The structural framework or fabric and foundations of the building shall be designed to withstand the total wind force so calculated together with wind forces due to projections above the roof level, or to signs erected on the roof, calculated in accordance with paragraphs 8 and 10, without exceeding the appropriate limitations of permissible stress for the materials used.
- (b) Normal stresses including those in respect of earth bearing capacity, foundations and piles may be increased for resisting the combined effect of dead and imposed loads and wind loads, but the increase shall not exceed that permitted by the appropriate provisions of regulations 33(6), 99, 120 and 158(2) of the Building (Construction) Regulations 1975 in accordance with which the building is designed and shall be in respect only of stresses induced by wind loads.
- (c) The effect of permanent structural walls and floors in stiffening a building framework may be taken into account in designing the structure.
- (d) The overturning moment on the building as a whole due to wind load shall not exceed two-thirds of the moment of stability of the building due to dead load only, unless the building is anchored to its foundations so as to resist the excess overturning moment and the excess of horizontal shear over the safe sliding friction. Vertically driven piles shall not be considered to resist horizontal forces.
- (e) Where multiple spans of roof cover a large area of uniform height, the building shall be designed for a horizontal wind drag, at roof level, equal to one-tenth of the basic wind pressure multiplied by the plan area of the building in square metres, in addition to the wind load on the walls or projections above the roof.

5. Where a building is of unusual shape or slenderness or where openings in walls are of unusual proportion, the Building Authority may require more detailed calculations and estimates of wind loads.

Special  
Buildings.

6. The external wind loads calculated from the pressures "P" in Table I are the sum of the total pressure on the windward face and the total suction on the leeward face, appropriate to the building.

Wind Pressures  
on Walls.

In addition to these, the internal pressures and suction due to opening in the walls shall be taken into account in the design of the panel walls.

- (a) Where the wall surfaces are nominally airtight, *i.e.* with fixed windows and closed doors, each wall shall be designed to withstand a total inward pressure of 0.6 "P" kPa or alternatively a total outward suction of 0.5 "P" kPa.
- (b) Where the wall surfaces have one-third of the area open, or capable of being open or broken open, each wall shall be designed for a total inward pressure of 0.9 "P" kPa or alternatively a total outward suction of 0.9 "P" kPa.

1.25  
7. (a) The roofs of all buildings shall be designed for a pressure acting outward normal to the surface equal to one and a quarter times the basic wind pressure of Table I appropriate for the building. Such pressures shall be considered as acting on the whole surface of the roof.

Wind Pressure  
on Roofs.

(b) Where the pitch of the roof exceeds thirty degrees the roof also shall be designed to withstand a pressure acting inwards normal to the roof surface equal to the basic wind pressure appropriate for the building. Such pressure shall be applied only to the windward surface of the roof.

(c) Anchorage of the roof to the walls and columns, and of walls and columns to the foundations shall be provided in all cases to resist uplift and sliding in excess of one half the dead load resistance.

8. The wind pressure acting on projections above the roof level such as stair-hoods, tanks, lift motor-rooms, etc. shall be considered separately from the general wind pressure on the building. The wind pressures given in Table II shall apply and the structure and its anchorage to the main building designed to resist the full wind loading so calculated.

Wind Pressure  
on Projections  
above roof level.

**Local Effects  
of Wind.**

9. (a) Overhanging cornices and eaves shall be designed for an upward pressure equal to twice the appropriate basic wind pressure.
- (b) All fastenings for wall and roof sheeting or covering within a distance of one-sixth of the length of the span, in the case of roofs, from the eaves, or ridge of the roof slope, and one-sixth of the length of the wall, in the case of both roofs and walls from each end of the walls, shall be designed for an outward suction equal to twice the appropriate basic wind pressure.

**Signs.**

10. (a) Solid signs erected at ground level shall be designed for a wind load of 1.2 kPa. Solid signs on roofs shall be designed for the basic wind pressure appropriate to the height zone of the centre of the sign. Signs in which the open area is less than one quarter of the gross area shall be considered to be solid signs.
- (b) Open signs erected at ground level shall be designed for a wind pressure of 2.4 kPa. Open signs on roofs shall be designed for a pressure equal to twice the basic wind pressure appropriate to the height zone of the centre of the sign. These pressures shall be applied to the aggregate projected area of all the members of the sign.

**Wind Forces  
during erection.**

11. Provision shall be made for wind stresses during the erection of any building.
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