

Such load tests of constructions are not intended to be used as a method for determination of acceptable allowable working stresses of a material as an alternate to the established standard method of determining such stresses.

SECTION 1204 — SPECIAL LOADS

1204.1 — SOIL PRESSURES ON BASEMENT WALLS AND FLOORS

(a) In the design of basement walls and similar approximately vertical structures below grade, provisions shall be made for lateral pressure of adjacent soil. Due allowances shall be made for lateral surcharge from fixed or moving loads.

(b) In the design of basement floors and similar approximately horizontal constructions below grade, the upward pressure of water, if any, shall be taken as the full hydrostatic pressure applied over the entire area. The hydrostatic head shall be measured from the underside of the construction.

1204.2 — RAILINGS

(a) Stairway railings, both exterior and interior shall be designed to resist a horizontal thrust of twenty (20) pounds per linear foot applied at the top of the railing.

(b) Balcony railings, both exterior and interior, shall be designed to resist a horizontal thrust of fifty (50) pounds per linear foot applied at the top of the railing. (See Section 1108).

1204.3 — SUPPORTS FOR WALKWAYS

Where walkways are to be installed above ceilings, supports shall be designed to carry a load of two hundred (200) pounds occupying a space two and one-half ($2\frac{1}{2}$) square feet, so placed as to produce maximum stresses in the affected members.

1204.4 — INTERIOR WALLS

Interior walls, permanent partitions, and temporary partitions shall be designed to resist all loads to which they are subjected but not less than five (5) pounds per square foot applied perpendicular to the walls, except for decorative screen walls.

SECTION 1205 — WIND LOADS

1205.1 — DESIGN FOR WIND LOADS REQUIRED

(a) Buildings and structures and every part thereof shall be designed to withstand the forces of wind pressure assumed in any direction. Allowance shall not be made for the effect of shielding by other structures.

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(b) The floor, roof or other horizontal bracing system shall be designed and constructed to transfer horizontal forces to the parts of the structural frame designed to carry the forces to the ground.

1205.2 — VELOCITY PRESSURES

(a) The basic velocity pressures to be used to determine the minimum design unit pressures shall be as set forth in Table 1205.1. The Building Official may accept a design based on lower pressures, the validity of which is shown by nationally recognized data. The Building Official may require evidence to support the design pressures used in the design of structures not included in this Section.

Alternate: NAVFAC DM-2, or ANSI A58.1, may be used in lieu of this section for the design of one and two story structures provided that Table 1205.1 shall be used to determine the basic wind load. When used, the plans shall show that structural design is based on NAVFAC DM-2, or ANSI A58.1.

(b) Structural members and systems providing the stability for the building or structure shall be designed for the velocity pressures set forth in Table 1205.1, multiplied by the appropriate shape factor set forth in Table 1205.2, 1205.3, and 1205.4, except as required in Paragraphs (e) and (f) of this Subsection.

(c) Components such as purlins, girts, and similar secondary members that transfer wind loads to the primary structural frame or system shall be designed for the velocity pressures set forth in Table 1205.1, multiplied by the appropriate shape factor set forth in Table 1205.5, except as specified in Paragraphs (e) and (f) of this Subsection.

(d) Curved roofs shall be designed for wind forces computed on the basis that the curved section is divided into not less than five equal segments. The force on each segment shall be determined by use of the shape factors set forth in Table 1205.4 for inclined surfaces, appropriate to the slope of the chords of the segment.

(e) Where rigid awnings, canopies, and canopy shutters are intended to be positioned to close an opening during periods of high wind, they shall be designed as required in Paragraph (b) of this Subsection. Where rigid awnings, canopies, and canopy shutters are intended to be removed or repositioned during periods of high wind, they shall be designed in their open position to withstand a pressure of sixty (60) percent of that set forth in Table 1205.1, with applicable shape factors, but not less than 15 psf. Shape factors for these structures shall be as set forth in Tables 1205.2, 1205.3, 1205.4, and 1205.5.

(f) Screened enclosures and supports for screening shall be designed to withstand the loads set forth in Table 1205.6, multiplied by a shape factor of 1.3 inward or outward to the walls and 0.7 ap-

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plied upward or downward to the roof. These factors apply only to enclosures at or near grade level.

(g) For determining stresses, all vertical design loads, except the roof live load and crane loads, shall be considered to be acting simultaneously with the wind pressure.

Where simultaneous combination of vertical design loads and wind pressure would produce a design stress less than either when acting alone, then the single condition resulting in the maximum design stress shall be used.

TABLE 1205.1
BASIC WIND LOAD PRESSURES IN POUNDS
PER SQUARE FOOT^{b,c}

(See Figure 1205.1)

Height Above Ground ^a , Feet	100 Yr. Recurrence of Fastest Mile of Wind, MPH										
	70	80	90	100	105	110	120	130			
0 - 30	10	13	16	20	23	24	29	34			
31 - 50	14	18	22	28	31	34	40	47			
51 - 100	16	21	27	33	37	40	48	56			
101 - 200	20	26	33	40	45	49	58	68			
201 - 300	23	30	38	47	52	57	67	79			
301 - 400	25	33	42	52	57	62	74	87			
401 - 500	27	36	45	55	61	67	80	94			
501 - 800	30	39	50	62	68	74	89	104			
801 - 1,000	33	43	55	68	75	82	97	114			
Over 1,000	34	45	56	70	77	84	100	117			

^a—Measured above the average level of the ground adjacent to the structure.

^b—To be modified by shape factors.

^c—Velocity pressures are based on the formula

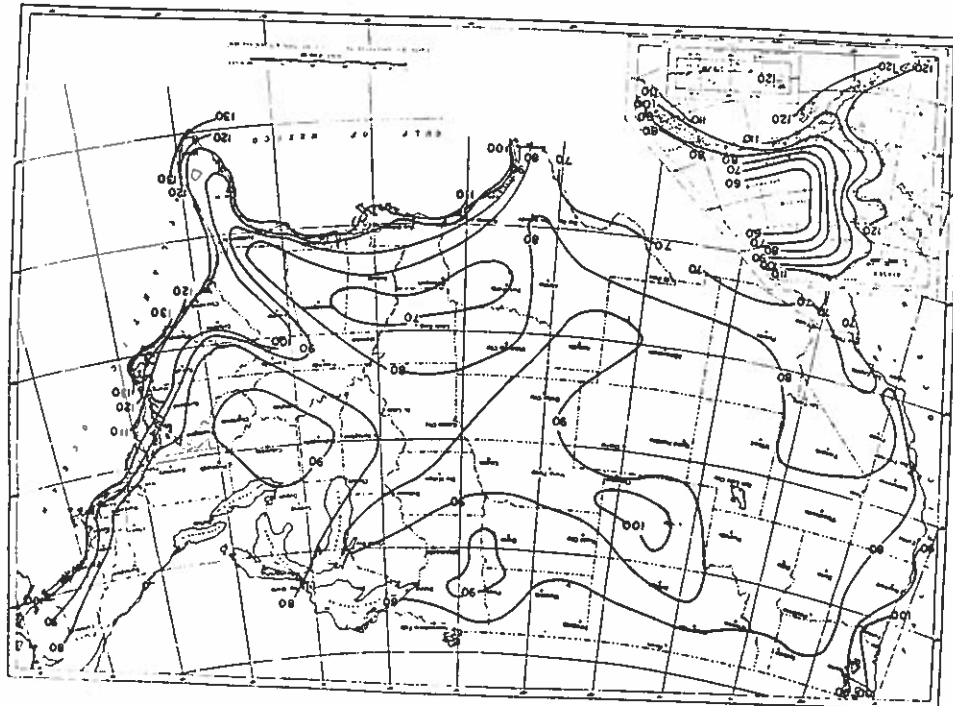
$$P = 0.00256 \times V^2 \times \left\{ \frac{H}{30} \right\}^{2/7} \quad \text{where:}$$

V = Wind Speed in MPH; and

H = the height above grade (in feet) of the pressure being computed.

This formula is only applicable to heights 30 feet or greater.

FIGURE 1205.1 — BASIC WIND SPEEDS IN MILES PER HOUR



Annual Extreme Fastest-Mile Speed 30 Feet Above Ground,
100-Year Mean Recurrence Interval

TABLE 1205.2

SHAPE FACTORS FOR PRIMARY FRAMES AND SYSTEMS—
VERTICAL SURFACES

Vertical Surface	Factor
Rectangular prismatic structures ^a	1.3 ^{b*}
Cylinders (chimneys, tanks, etc.)	0.7
Flat surfaces with no appreciable depth, including signs and fences	1.4
Partially open surfaces ^c [percent solid]	
10%	0.35
20%	0.55
40%	0.80
60%	1.00
80%	1.20
100%	1.30

*See Table 1205.4 for footnotes.

TABLE 1205.3

SHAPE FACTORS FOR PRIMARY FRAMES AND SYSTEMS—
HORIZONTAL SURFACES

	Factor	
Horizontal Surfaces*	Normal to Windward 1/3 of Surface	Normal to Leeward 2/3 of Surface
Enclosed buildings	— 1.0 ^b	— 0.75
Buildings with one or more sides open	— 1.5	— 1.25
Overhangs and eaves ^f	— 1.5	— 1.50

*See Table 1205.4 for footnotes.

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TABLE 1205.4

SHAPE FACTORS FOR PRIMARY FRAMES AND SYSTEMS—
INCLINED SURFACES

Inclined Surface ^a Degree from Horizontal	Factor	Normal to Windward Surface	Normal to Leeward Surface
70-90		+ 0.80	— 0.70
60-70		+ 0.65	— 0.70
50-60		+ 0.55	— 0.70
40-50		+ 0.25	— 0.70
30-40		— 0.25	— 0.70
20-30		— 0.75	— 0.70
10-20		— 0.93	— 0.70
Overhangs and Eaves ^f		— 1.50	— 1.50

^aIncludes + 0.8 on windward and — 0.5 on leeward sides.^b+ indicates forces inward, — indicates forces outward.^cShape factor to be applied to gross area of surface.^dIncludes surfaces with less than 10° inclination to horizontal.^eFor buildings with one or more sides open, add — 1.0 to all negative factors.^fThis factor is not additive and shall be treated as a separate load.

TABLE 1205.5

SHAPE FACTORS FOR COMPONENTS TRANSFERRING WIND
LOADS TO THE STRUCTURAL FRAME OR SYSTEM

Vertical Surface ^{b*}	Pressure Inward	Pressure Outward
Exterior walls of closed buildings, including fixed glass, glazing and supporting members	+ 1.1	— 1.1
Operative windows and sliding glass doors, including parts	+ 1.1	— 0.55
Exterior walls of buildings with one or more sides open	+ 1.1	— 1.5
Horizontal surfaces	Table 1205.3	
Inclined surfaces	Table 1205.4	

*See Table 1205.4 for footnotes

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TABLE 1205.6

WIND PRESSURES FOR SCREENED ENCLOSURES^a

Percent Open ^b	Wind Pressure [psf]
Less than 40	30
40 to 60	20
Over 60	10

^aSee Subsection 1205.2 (f) for shape factors; load to be applied to gross screened area.

^bPercentage of gross area.

1205.3 — STABILITY

(a) Calculations to determine overturning and uplift forces shall be made with the shape factors set forth in Tables 1205.2, 1205.3 and 1205.4.

(b) The overturning moment calculated from the wind pressure shall not exceed two-thirds ($\frac{2}{3}$) of the dead load resisting moment.

(c) The uplift forces calculated from the wind pressure shall not exceed two-thirds ($\frac{2}{3}$) of the resisting dead loads.

(d) Anchorage of the roof to walls and columns and of walls and columns to the foundation to resist overturning, uplift, and sliding forces shall be provided.

SECTION 1206 — SEISMIC DESIGN REQUIREMENTS

Where seismic design is required by local authorities, all buildings and structures shall be designed to withstand seismic forces in accordance with the requirements of ANSI A58.1—Building Code Requirements for Minimum Design Loads in Buildings and Other Structures. (See Figure 1206.1)

SECTION 1207 — OCCUPANCY PERMITS FOR CHANGED LOADING

Plans for other than residential buildings filed with the Building Official with applications for permits shall show on each drawing the live loads per square foot of area covered, for which the building is designed, and occupancy permits for buildings hereafter erected shall not be issued until the floor load signs, required by Section 110, have been installed. Changes in the occupancy of a building now existing or hereafter erected shall not be made until a revised occupancy permit has been issued by the Building Official certifying that the floors are suitable for the loads characteristic of the proposed occupancy. (See Section 109).

Maps of the three separate areas of the United States with indicated earthquake risk zones. This zoning was superposed on maps showing the damaging earthquakes of the United States through 1968 that were compiled and supplied by the Seismology Division of the Coast and Geodetic Survey (now the NOAA Environmental Research Laboratories). The earthquake risk zones were determined by American National Standards Committee A58.

