

Design Wind Loads		All Heights	
Figure 29.4-1	Force Coefficients, C _f	Solid Freestanding Walls & Solid Freestanding Signs	
Other Structures			

ELEVATION VIEW

CROSS-SECTION VIEW

CASE A

CASE B

CASE C

Clearance Ratio, s/h	Aspect Ratio, B/s											
	≤ 0.05	0.1	0.2	0.5	1	2	4	5	10	20	30	≥ 45
1	1.80	1.70	1.65	1.55	1.45	1.40	1.35	1.35	1.30	1.30	1.30	1.30
0.9	1.85	1.75	1.70	1.60	1.55	1.50	1.45	1.45	1.40	1.40	1.40	1.40
0.7	1.90	1.85	1.75	1.70	1.65	1.60	1.60	1.55	1.55	1.55	1.55	1.55
0.5	1.95	1.85	1.80	1.75	1.75	1.70	1.70	1.70	1.70	1.70	1.70	1.75
0.3	1.95	1.90	1.85	1.80	1.80	1.80	1.80	1.80	1.80	1.85	1.85	1.85
0.2	1.95	1.90	1.85	1.80	1.80	1.80	1.80	1.80	1.85	1.90	1.90	1.95
≤ 0.16	1.95	1.90	1.85	1.85	1.80	1.80	1.85	1.85	1.85	1.90	1.90	1.95

Region (horizontal distance from windward edge)	Aspect Ratio, B/s										Region (horizontal distance from windward edge)	Aspect Ratio, B/s	
	2	3	4	5	6	7	8	9	10	13		≥ 45	
0 to s	2.25	2.60	2.90	3.10*	3.30*	3.40*	3.55*	3.65*	3.75*	0 to s	4.00*	4.30*	
s to 2s	1.50	1.70	1.90	2.00	2.15	2.25	2.30	2.35	2.45	s to 2s	2.60	2.55	
2s to 3s		1.15	1.30	1.45	1.55	1.65	1.70	1.75	1.85	2s to 3s	2.00	1.95	
3s to 10s			1.10	1.05	1.05	1.05	1.05	1.00	0.95	3s to 4s	1.50	1.85	
										4s to 5s	1.35	1.85	
										5s to 10s	0.90	1.10	
										>10s	0.55	0.55	

*Values shall be multiplied by the following reduction factor when a return corner is present:

L _r /s	Reduction Factor
0.3	0.90
1.0	0.75
≥ 2	0.60

PLAN VIEW OF WALL OR SIGN WITH A RETURN CORNER

Notes:

- The term "signs" in notes below also applies to "freestanding walls".
- Signs with openings comprising less than 30% of the gross area are classified as solid signs. Force coefficients for solid signs with openings shall be permitted to be multiplied by the reduction factor $(1 - (1 - \epsilon)^{1.5})$.
- To allow for both normal and oblique wind directions, the following cases shall be considered:
For $s/h < 1$:
CASE A: resultant force acts normal to the face of the sign through the geometric center.
CASE B: resultant force acts normal to the face of the sign at a distance from the geometric center toward the windward edge equal to 0.2 times the average width of the sign.
For $B/s \geq 2$, CASE C must also be considered:
CASE C: resultant forces act normal to the face of the sign through the geometric centers of each region.
For $s/h = 1$:
The same cases as above except that the vertical locations of the resultant forces occur at a distance above the geometric center equal to 0.05 times the average height of the sign.
- For CASE C where $s/h > 0.8$, force coefficients shall be multiplied by the reduction factor $(1.8 - s/h)$.
- Linear interpolation is permitted for values of s/h , B/s and L_r/s other than shown.
- Notation:
B: horizontal dimension of sign, in feet (meters);
h: height of the sign, in feet (meters);
s: vertical dimension of the sign, in feet (meters);
 ϵ : ratio of solid area to gross area;
L_r: horizontal dimension of return corner, in feet (meters)

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 - ϵ : ratio of solid area to gross area;
 - L_r : horizontal dimension of return corner, in feet (meters)