

The curves obtained in Fig. 1, considering mean temperature from 30 to 60 degrees Fahrenheit, have been computed by this formula. This gives correct snow load assumptions for customary roof slopes from the horizontal to 60 degrees, or nearly 1 pitch, which is in excess of usual conditions. Any intermediate inclination is readily figured from the formula (1).

Adjoining structures with roofs connected in series, as shown diagrammatically in Fig. 2, must be considered ac-

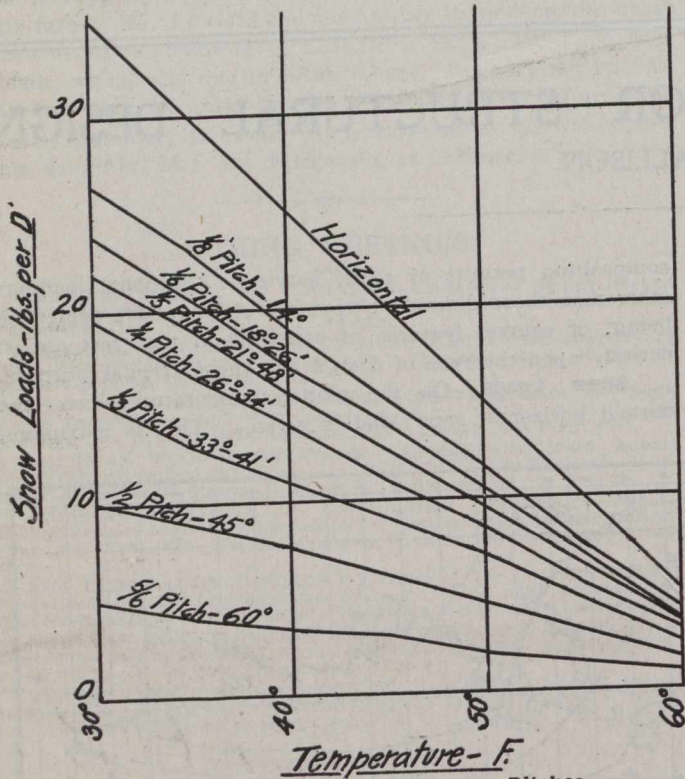


Fig. 1.—Snow Loads for Various Pitches.

ordingly. Reduced loadings relative to pitch are computed for a, b, and c; full horizontal snow, as given on the map chart, is allowed for d, e, and f.

Correspondingly, when a high wind pressure is assumed the snow load should be reduced in proportion, in some cases practically neglected, as it is evident that such conditions would blow the snow from the roof.

Wind Loads.—Diverse conditions of winds and various allowances to be made for such are noted upon the chart. The pressure, dependent upon the velocity, is given as maximum. Such loadings, always considered as normal to

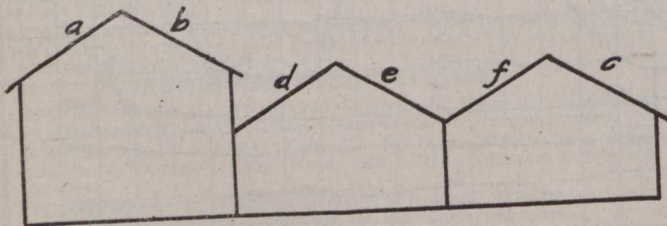


Fig. 2.

the slope, are capable of reduction for customary roof pitches by using the following formula, and from which the curve (Fig. 3) is derived:

Wn = normal wind pressure, pounds per sq. ft.
 Pl = maximum wind pressure on vertical surface, pounds per sq. ft. (Obtained from chart).
 a = as in formula (1).

$$Wn = Pl \left(\frac{2a + 5}{100} \right) \quad (2)$$

For the various wind pressures given the formula (2) closely approximates the following:

- For 20 lbs. Wn = $\frac{4}{9}a$
- For 30 lbs. Wn = $\frac{2}{3}a$
- For 50 lbs. Wn = $\frac{3}{8}a$
- For 75 lbs. Wn = $\frac{5}{3}a$

These results are for "a" of 45 degrees or less; above this inclination the resulting normal and horizontal pressures are equal. The pressures given are in accord with modern practice, and for the United States and vicinity agree with tests made by the Signal Service Bureau.

Earthquake Regions.—The chart is serviceable in locating districts of seismic disturbances. As design in such localities embodies a thorough study of prevailing conditions,

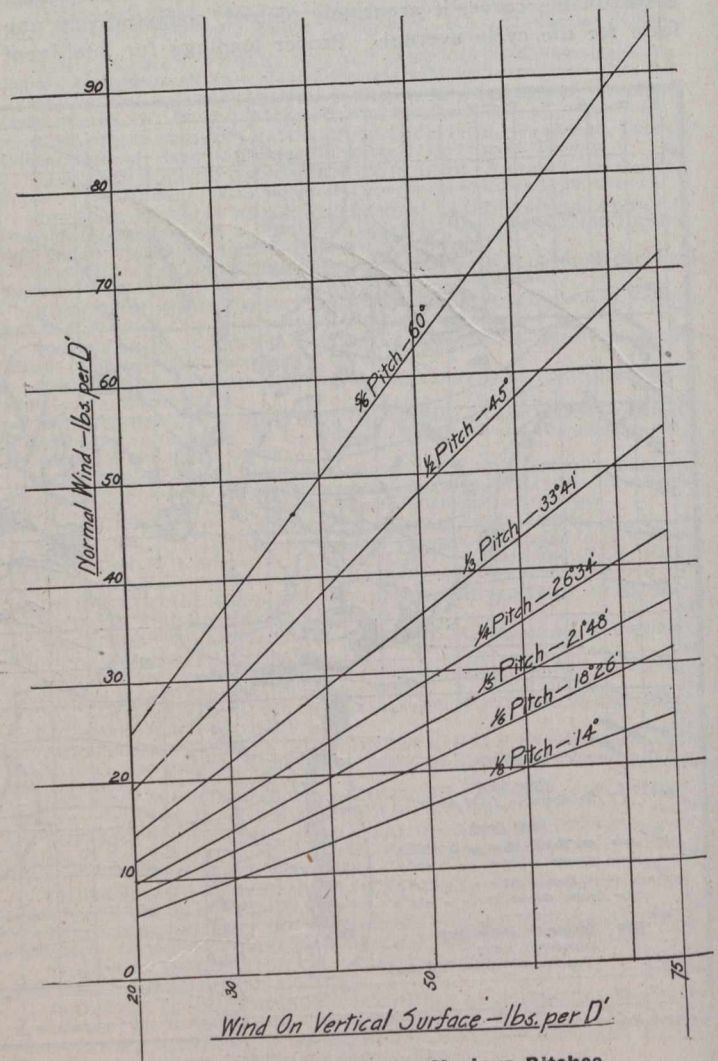


Fig. 3.—Wind Loads for Various Pitches.

necessitating exceptional foundations and diagonal bracing for buildings in these regions, it is beyond the scope of intentions in presenting the map chart and explanation.

The chart feature shown has been for some time employed in the engineering department of a large structural steel concern. The writer has embellished it where deemed essential, deriving the various curves shown from the formulas regularly used by this company.