

46—Safety Engineering Tables

TABLE 46-I
STRENGTH OF ICE

<i>Load</i>	<i>Ice Thickness Inches (min)</i>
One person on skis	1 3/4
One person on foot	2
Group, single file or Snowmobile	3
Passenger car, 2 ton gross	7 1/2
Light truck, 2 1/2 ton gross	8
Medium truck, 3 1/2 ton gross	10
Heavy truck, 7-8 ton gross	12

Courtesy Snow, Ice and Permafrost Research Establishment, Corps of Engineers, U S Army Snowmobile data from "A Snowmobile Accident Study," R W McLay and S Chism, 1969

NOTES

- 1) This table is for clear sound ice
- 2) Thickness must be increased and extreme caution used after spring melt starts
- 3) Snow ice—use 50% of thickness of snow ice as effective for table given
Example 10 in snow ice plus 6 in clear ice gives 11 in thickness Medium truck all right, but not heavy truck
- 4) Table does not apply to parked loads
- 5) Key to safety on ice is to disperse the weight over a large area, do not run vehicles within 50 ft of each other

TABLE 46-J
DESIGN WIND PRESSURES FOR VARIOUS HEIGHT ZONES OF BUILDINGS
OR OTHER STRUCTURES
(From *Minimum Design Loads in Buildings and Other Structures*, ANSI A58 1)

<i>Height Zone, feet</i>	<i>Wind Pressure pounds per sq ft</i>
Less than 50	20
50 to 99	24
100 to 199	28
200 to 299	30
300 to 399	32
400 to 499	33
500 to 599	34
600 to 799	35
800 to 999	36
1 000 to 1,199	37
1,200 to 1,399	38
1,400 to 1,599	39
1,600 and over	40

From Kent's Mechanical Engineers Handbook (John Wiley & Sons)

WIND LOADS A minimum pressure in pounds per square foot is specified by all building codes as an allowance for the effect of wind pressure against exposed surfaces of buildings. The figures given are recommended in this report as minimums. These requirements do not provide for tornadoes because they are based on a design wind velocity of 75 mph corresponding roughly to a 5-min average of 50 mph (indicated 63 by a 4-cup anemometer) at 30 ft from the ground.

Special provision for wind bracing is required for narrow buildings of even medium height and for all high buildings. In towerlike structures wind bracing should be planned in the early stages of design. The overturning moment due to wind pressure should not exceed two-thirds of the moment of stability, disregarding live loads, except where foundations are securely anchored. The possibility of a structure sliding on its foundation bed should also be considered. In computing the wind load no allowance should be made for the shielding effect of other buildings. All roofs should be designed to resist wind suction as well as wind pressure.