

A copy of some  
calculations done  
by an architect friend  
of John Moorman  
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## Wind pressure

The velocity pressure "P" in lbs/sq foot is given by the equation  $P = C G^2$

"G" is wind gust as measured by a Dines pressure tube anemometer (M.P.H.)  
"C" is a constant dependent on temperature & atmospheric pressure & a value of 0.0027 is usually assigned which is the average for most of Canada in the windy part of the year.

Assume a wind gust speed of 100 M.P.H.

$$\therefore P = 0.0027 \times 100^2 = \underline{2.7 \text{ P.S.F.}} \text{ (pounds per sq. foot).}$$

Assume a wind gust speed of 50 M.P.H.

$$\therefore P = 0.0027 \times 50^2 = 6.75 \text{ P.S.F.}$$

as you can see P varies directly as the square of the Gust Velocity

The National Building code (Climatic Information) Supplement # 1, 1965 provides a table of design data which lists Windsor as having an average high or design gust speed of 74 M.P.H. & a corresponding pressure of 1.5 P.S.F.

This table may be used for building under 40'-0" high.

Typical loading on a wall 30 ft. high with gusts to 74 M.P.H.  
 $= 1.5 \text{ P.S.F.} \times 30 = 450 \text{ pounds / lineal ft. of wall}$

for a wall 100 ft. long by 30 ft high

$$\text{Loading} = 450 \times 100 = 45,000 \text{ pounds.}$$

To prevent a wall from tilting or moving at the base each one foot section (mortar joint) must withstand or react to a bending moment of 6,750 ft. pounds. This of course envisions a wall unrestrained at the top.