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Porch Column Uplift Worksheet

1. Measure how far the porch roof sticks out from the wall, D = _____ ft.
2. Measure the width of the porch parallel to the house wall, W = _____ ft.
3. Count the number of columns supporting the roof N = _____ (whole number).
4. Multiply the distance the porch sticks out from the wall by the width of the porch. D x W = _____ (this is the area of the porch roof exposed beyond the wall of the house).
5. Divide this number by two and by the number of columns along the edge of the porch roof that is farthest away from the wall. This gives the average number of square feet of porch roof that apply uplift loads to a typical edge column. (D x W) / (2 x N) = A = _____.
6. Select the appropriate net uplift pressure (wind pressure minus weight) for the design wind speed at your house from the table below, P = _____ psf.
7. Multiply the net uplift pressure times the typical area, P x A = _____ pounds.

This is the uplift on each column, on the connection at the top of the column, and also on the connection at the bottom of the column. If the column is heavy (e.g. concrete or masonry) then you can reduce the force on the connection at the bottom of the column by the weight of the column. Make sure that you have enough weight in the foundation or floor system that can be logically assigned to the column to counteract the uplift forces. Otherwise, you may just fail the foundation.

Uplift Pressure Table

Wind Speed (mph)	Uplift Pressure (lbs per sq. ft. = psf)	Weight of Roof (psf)	Net Uplift Pressure on Roof (psf)
110	32	10	22

120	38	10	28
130	44	10	34
140	51	10	41
150	59	10	49

Example Calculation and Observations: A porch is 8 feet deep and 25 feet wide with 4 columns along the outside edge of the porch. Consequently:

- D = 6 ft
- W = 25 ft
- N = 4
- D x W = 200 sq. ft.
- A = 100/4 = 25

If the design wind speed is 130 mph, the net uplift pressure on the roof is:

- P = 34 psf

Then P x A (the average uplift on each column) is 850 pounds. You can pick an appropriate strap or connectors from the manufacturer's literature. Generally, the small metal straps are good for around 400 pounds each so two small straps would get you pretty close and three would be more than enough. The larger straps are generally good for 800 to 900 pounds so if a larger strap were found, it would likely be adequate. The threaded rod, if properly anchored in the foundation can resist several thousand pounds (provided you have a big enough foundation - concrete weighs about 125 pounds per cubic foot).

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