

## Kee Guard Counter-weight & Post-base loadings



The following is an overview of how the weight of the Kee Guard system is dispersed on the roof surface. The weight is distributed  $1/2$  of the distance to adjacent posts as shown here; each leg supports 50% of each bay.

The Kee Guard counterweight has mass 29 lb, and its foot-print is 2.5 square feet.

The Post-base fitting has a foot-print of 0.135 square feet.

The railing and post is taken as Size 8 with mass of 2.64 lb/ft.

The cantilever arm attached to the counterweight is taken as Size 7 with mass of 2.09 lb/ft.

Therefore, for a post spacing of 8.0 ft, each vertical leg is supporting the weight of the top tube and the mid-rail each for length 8 ft, 4 ft m each side of the post. The total weight of the assembly section is 91.4 lb, with 56.9 lb distributed to the post base and 34.4 lb to the counterweight.

In the aggregate, each segment is resisted by a roof area of at least 15 square feet, over which the total load of 91 lb produces an effective roof loading of 6.1 psf.

Similarly, if the post spacing is reduced to 6.5 ft, the total weight of the segment drops to 83.4 lb. Reducing the effective resistive of roof to 12.2 square feet produces an effective roof loading of 6.8 psf.

By comparison, a person weighing 220 lb standing on the same section of roof, as resisted by at least 16 square metres of area produces an effective roof loading of 13.75 psf.

This information is provided for reference only for use by qualified designers.



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