

## The Problem of the Month October 2021

Consider a square prism,  $1 \times 1 \times H$  units. (The value of  $H$  is irrelevant.) Replace the roof of this prism with a slanted plane that passes through one of the top vertices and contains a line passing through a horizontal line connecting two opposite vertical edges of the prism. (See the picture below on the left.) The result resembles the Diamond Building in Chicago. (See picture below on the right.) Find a formula that gives the area of the slanted roof as a function of the angle of declination of the roof.

