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NAME

Fluids-ID

Quiz 16. The structure shown in the figure consists of three cylindrical support posts to which an elliptical flat plate sign (area is 39.3 ft^2) is attached. Estimate the drag on the structure when a 73.3 ft/s wind blows against it (flow direction is into the paper).

(Note: $\rho = 0.00238\ slugs/ft^3$)

For a Drag,

$$\text{Drag} = \frac{1}{2}\rho C_D U^2 A_p$$

where A_p is the projected area to the wind direction.

$C_D$corresponding to each part are given as blow:

Shape	C_D
Elliptical flat plate sign (1)	1.1
Cylinder (2)	0.6
Cylinder (3)	0.5
Cylinder (4)	0.25