

Figure 2. Vertical aerators are satisfactory for smaller bins of 5000 bushels or less. If used in square or rectangular bins, the distance between aerators should not much exceed the grain depth.

excessive static pressure losses from duct friction. Air velocities in ducts of 1,000 to 1,500 fpm are desirable. The cross-sectional area of supply ducts can be determined as follows:

$$\text{Duct cross-section area} = \frac{\text{Total air volume (cfm)}}{\text{Air velocity (fpm)}}$$

To determine the supply duct size for aerating the wheat in the previous example, use an air velocity in the duct of 1,000 fpm. The required duct size is:

$$\frac{500 \text{ cfm}}{1000 \text{ fpm}} = 0.5 \text{ square foot (sq ft)}$$

A 10-inch circular supply duct or a 6 x 12 inch rectangular supply duct would be sufficient (Table 2). The total cross-sectional area of the collector ducts should have at least as much area as the supply duct.

To prevent excessive friction losses as air enters the perforated duct and leaves the grain, the duct needs enough perforated surface area to limit air

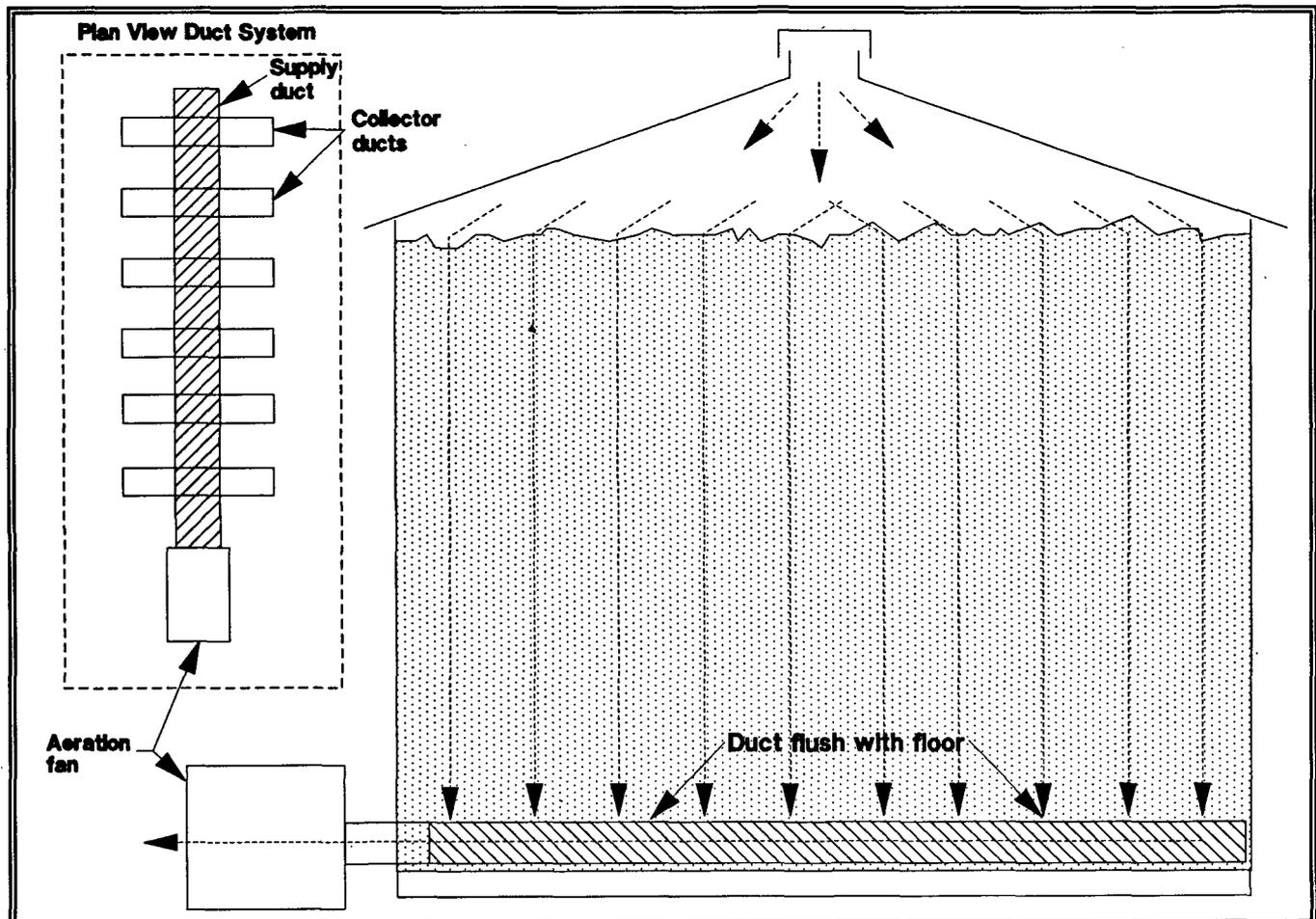


Figure 3. Duct system for round or rectangular bins.