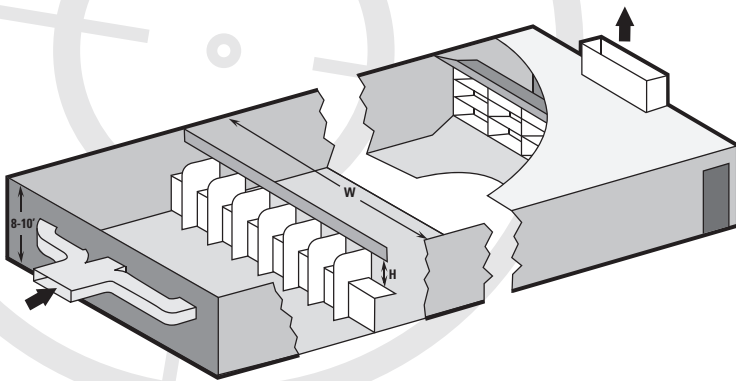


# PRICE FIRING RANGE PRODUCTS



## ▶ VENTILATION OF INDOOR FIRING RANGES IS A CRITICAL APPLICATION.



The ventilation system of an indoor firing range must protect the occupants from the hazards of contaminants such as vaporized lead and powder. The air must be supplied in such a way as to draw these contaminants away from the shooter's breathing zone and to remove the smoke to allow the shooter to see down the range. It is important that the supply air be introduced in such a way as to provide sufficient air velocity to carry the smoke and contaminants away from the occupants while not creating turbulence and eddy zones which could actually draw the contaminants back into the shooters breathing area.

Due to their method of operation the use of conventional mixing air outlets is typically not recommended to supply air to indoor firing ranges. The conventional mixing outlets induce the room air, mixing it with the primary air. The result is a uniform temperature from floor to ceiling in the space, and a homogenous uniform, distribution of contaminants throughout the space. This is not desirable in an indoor firing range. To meet NIOSH requirements, air must be delivered behind the shooter and move as a wall of air downrange to the exhaust area.

Price offers two methods for supplying the air to an indoor firing range. The first of these is the laminar wall (see Figure 1). The entire wall behind the shooter is the diffuser with the wall acting as the plenum. Price supplies the perforated laminar flow panels and supporting frames. The plenum typically has several duct drops supplying it, as shown in Figure 2. This is done to help equalize the airflow across the entire face of the diffuser.

When designing a laminar wall distribution system the velocity of the air in the wall plenum and in the inlet ducts is critical. It is recommended that the depth of the wall plenum be such that the downward air velocity in the plenum is approximately 500 feet per minute (see Figure 3). This will help to ensure there is a uniform distribution of the supply air over the entire height of the laminar wall and an acceptable pressure drop at the specified airflow.

When sizing the inlets, the maximum recommended inlet velocity is 1000 feet per minute. If inlet velocities are higher there may be problems with higher sound levels and pressure drops.

The laminar wall is available in either aluminum or stainless steel construction. The wall is supplied in easy to handle sections sized for quick and simple installation. If desired, each panel can be supplied with quarter-turn fasteners for easy removal of the panel, giving access to the inside of the plenum for cleaning.

With indoor firing ranges, the window of the viewing area is quite often behind the shooter, as is the door giving access to the firing range. These are easily incorporated into the laminar wall.

The second method of supplying air into an indoor firing range is to use the high volume; low throw radial discharge, HRFD diffusers (Figure 4). These diffusers are usually the one-way discharge style and are installed on the ceiling at the wall behind the shooter. They discharge large volumes of air into the space with short throws, reducing the chance of drafts or excessive velocities in the area around the shooter. These are also available in either stainless steel or aluminum construction.

For those applications where the laminar wall will not satisfy the requirements nor will the HRFD style diffuser, Price does specials. Custom oversized RFD diffusers, modified PHC diffusers, whatever is required to meet the project requirements, Price can provide it.

References:

1. Range Source Book, National Rifle Association of America
2. Indoor Pistol and Small Bore Rifle Range Ventilation, American Conference of Governmental Industrial Hygienists, 18th Edition.
3. Indoor Ventilation Design Considerations, National Association of Shooting Ranges

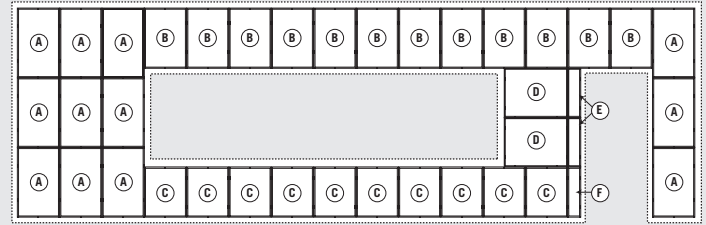


FIGURE 1 Laminar wall

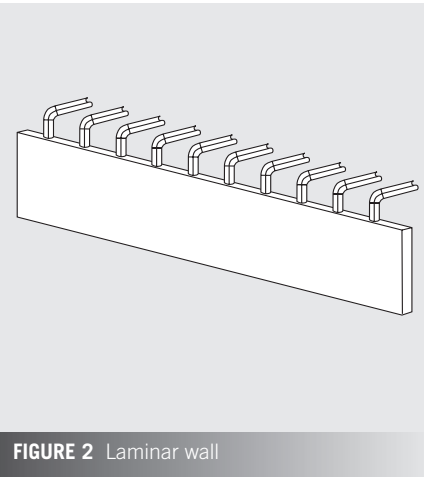


FIGURE 2 Laminar wall

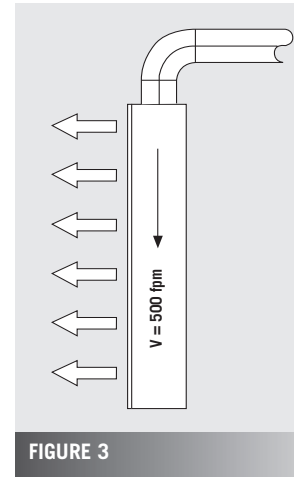


FIGURE 3

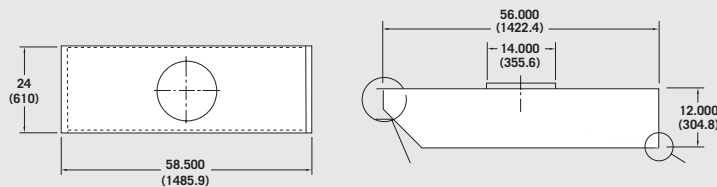


FIGURE 4 HRFD - High Capacity Radial Flow Diffuser

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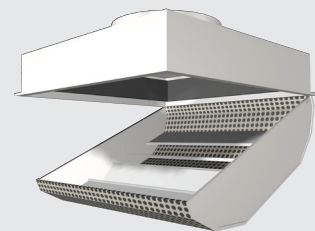


FIGURE 5 RFD - Radial Flow Diffuser