“Metal Duct Dispersion Systems”

presented by

Scott Hobbs
McGill AirFlow LLC
Renton, WA
Metal Duct Dispersion Systems

- Perforated Diffuser
- Register or Grille
- Industrial Air Diffuser
- Displacement Ventilation
- Mixing (Dilution)
- Localized Airflow
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Many air distribution applications involve supply air to confined rooms or areas that require many air changes per hour without creating a disturbance or draft.
Metal Duct Dispersion Systems

Metal Duct Dispersion systems consist of 360 perforated (ribbed), spiral duct having an overall open area of 23 percent. Typical air delivery of 50 fpm terminal velocity at a distance of not more than 2 feet along the length of the diffuser.
Design calculations and overall design shall note: the diffuser length, duct diameter, orifice diameters, spacing of orifice plates, and the approximate pressure drop.
Metal Duct Dispersion Systems

Variable length conditioning

Variable Supply
Metal Duct Dispersion Systems

Metal duct dispersion systems are designed to have a surface discharge velocity varying from 5 to 50 cfm per ft² of surface area. Ideal velocities are from 500-1000 fpm.

*Note: Metal Duct Dispersion systems should be considered an engineered system. Static pressures vary and need to be calculated.
16 foot long, 12-in Diameter SP DUCT-D-FUSER
with an Entering Velocity of 1800 fpm

Ignore the 3-D surface contour. It is just showing the throw velocity as a 3-D contour. Look at the 2-D contours project below it.

50 fpm contour line

Duct tested was 16-ft long. Throw is 12 feet; i.e., 50 fpm contour extends 12 feet from end of diffuser

Notice throw along side of diffuser is 27 inches max.

Distance from Duct (inches)
Design Guidelines

Velocity Recommendations

500- 800 - Best
800- 1100 - Better
1100- 1400 - Good
1400-1800 - Fair
Over 1800 - Poor
### Metal Duct Dispersion Systems

#### Airflow Characteristics

- a) Constant Diameter
- b) Reducing Diameter

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<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
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Questions?
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Typical Reducing metal duct dispersion system