ASHRAE T.C. 5.2

Summer Conference - Seattle, WA 2014

"Metal Duct Dispersion Systems"

presented by

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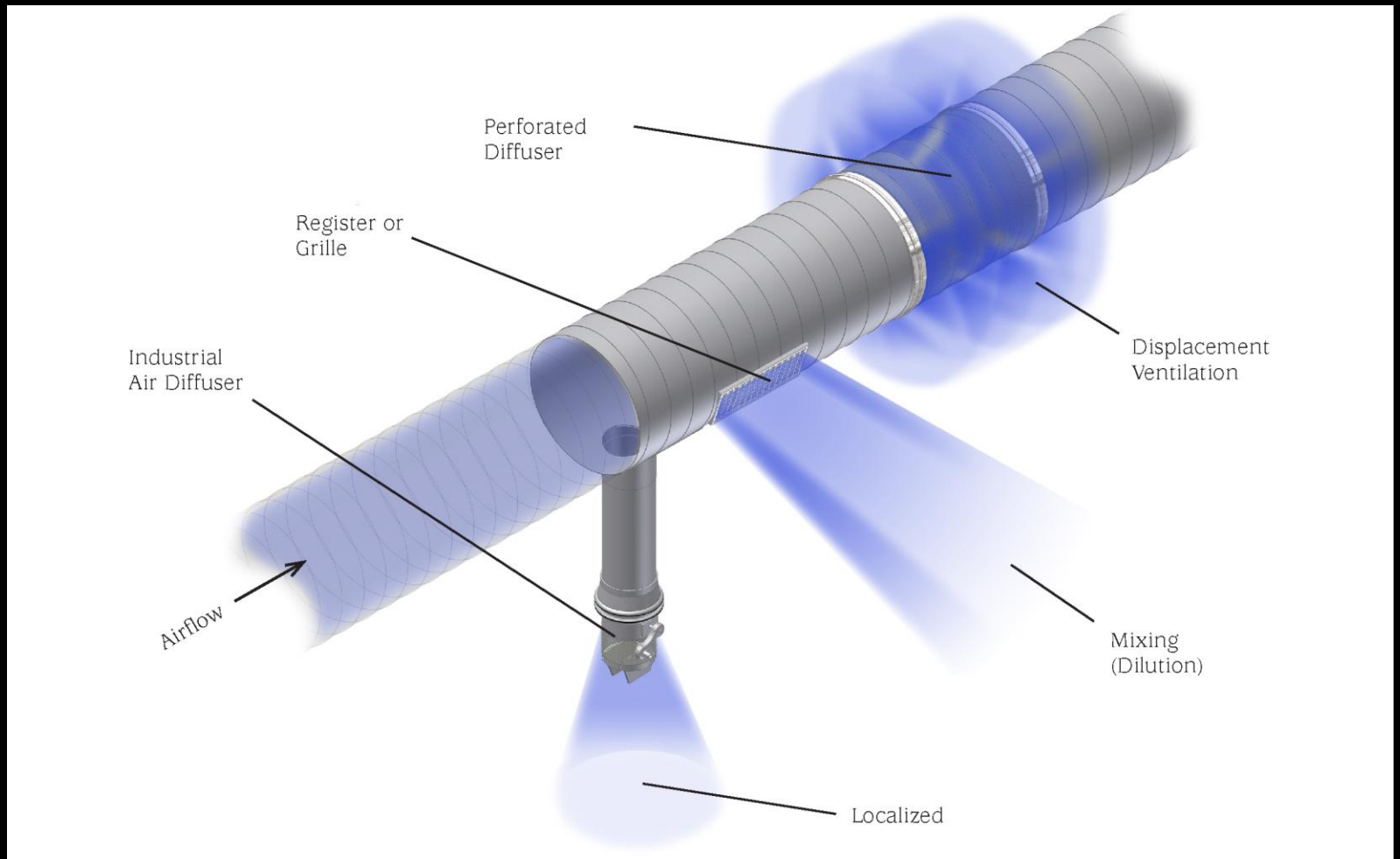
Metal Duct Dispersion Systems



Metal Duct Dispersion Systems

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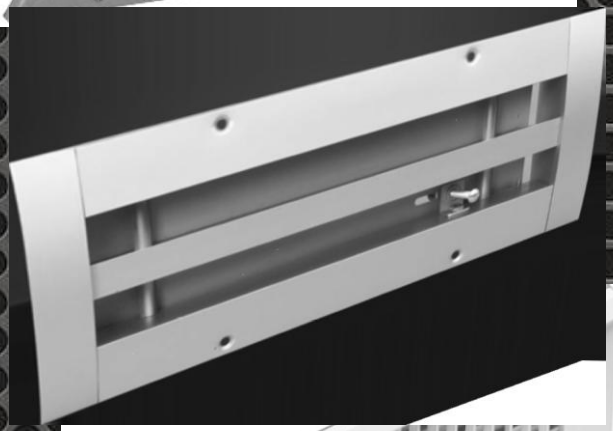

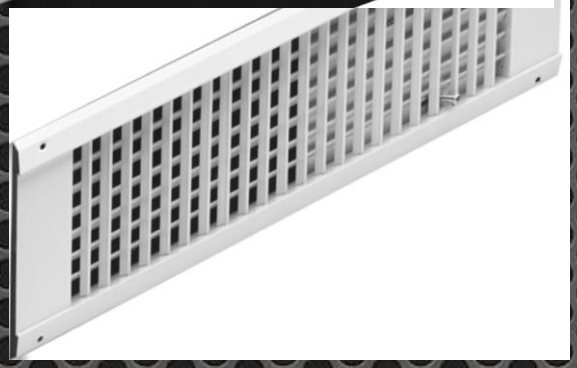

Metal Duct Dispersion Systems

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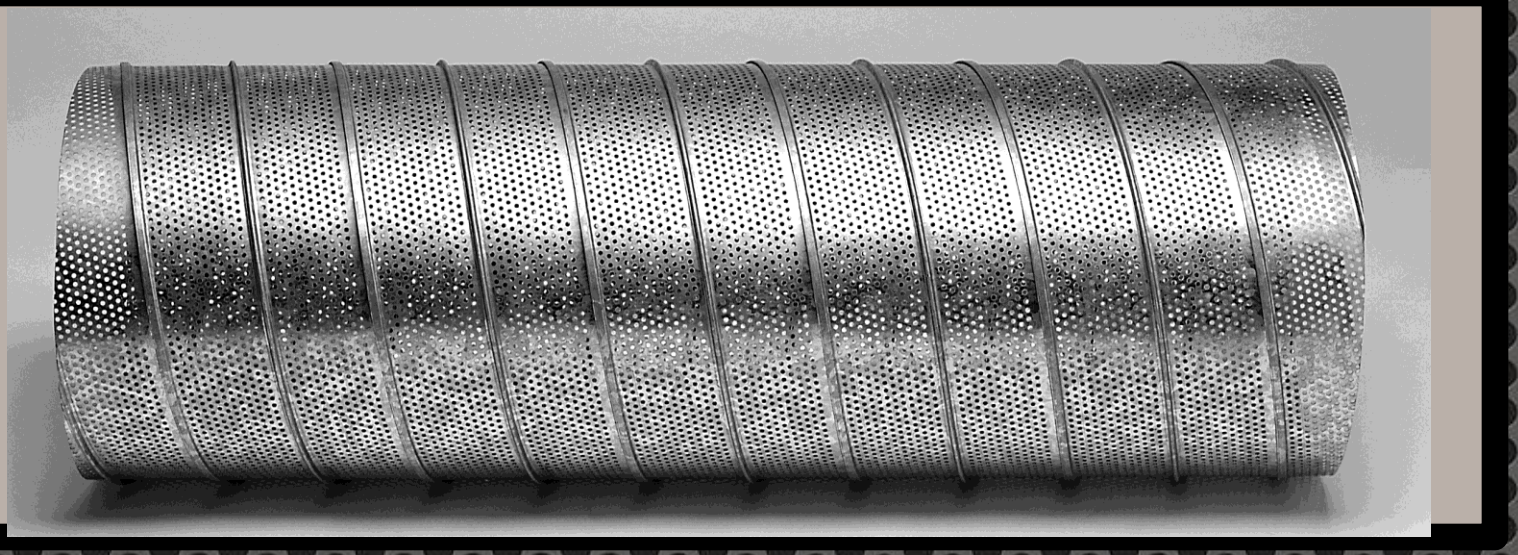
Many air distribution applications involve supply air to confined rooms or areas that require many air changes per hour without creating a disturbance or draft.

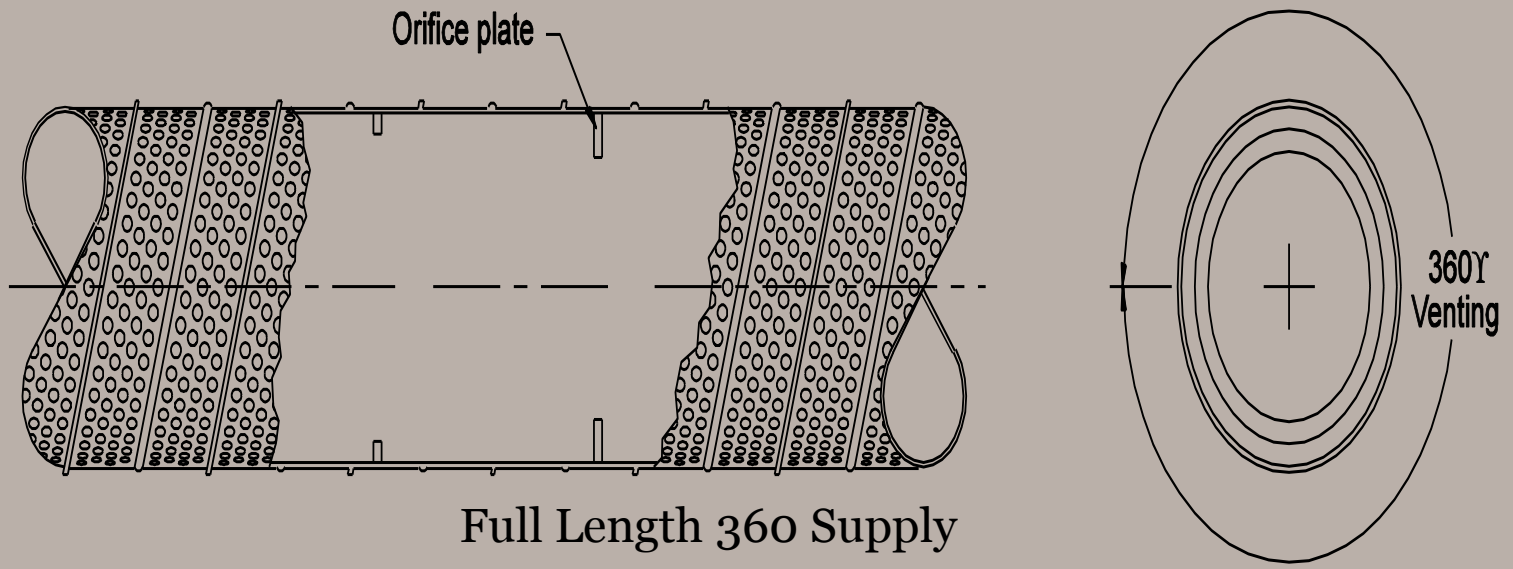
Metal Duct Dispersion Systems

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.



Metal Duct Dispersion Systems

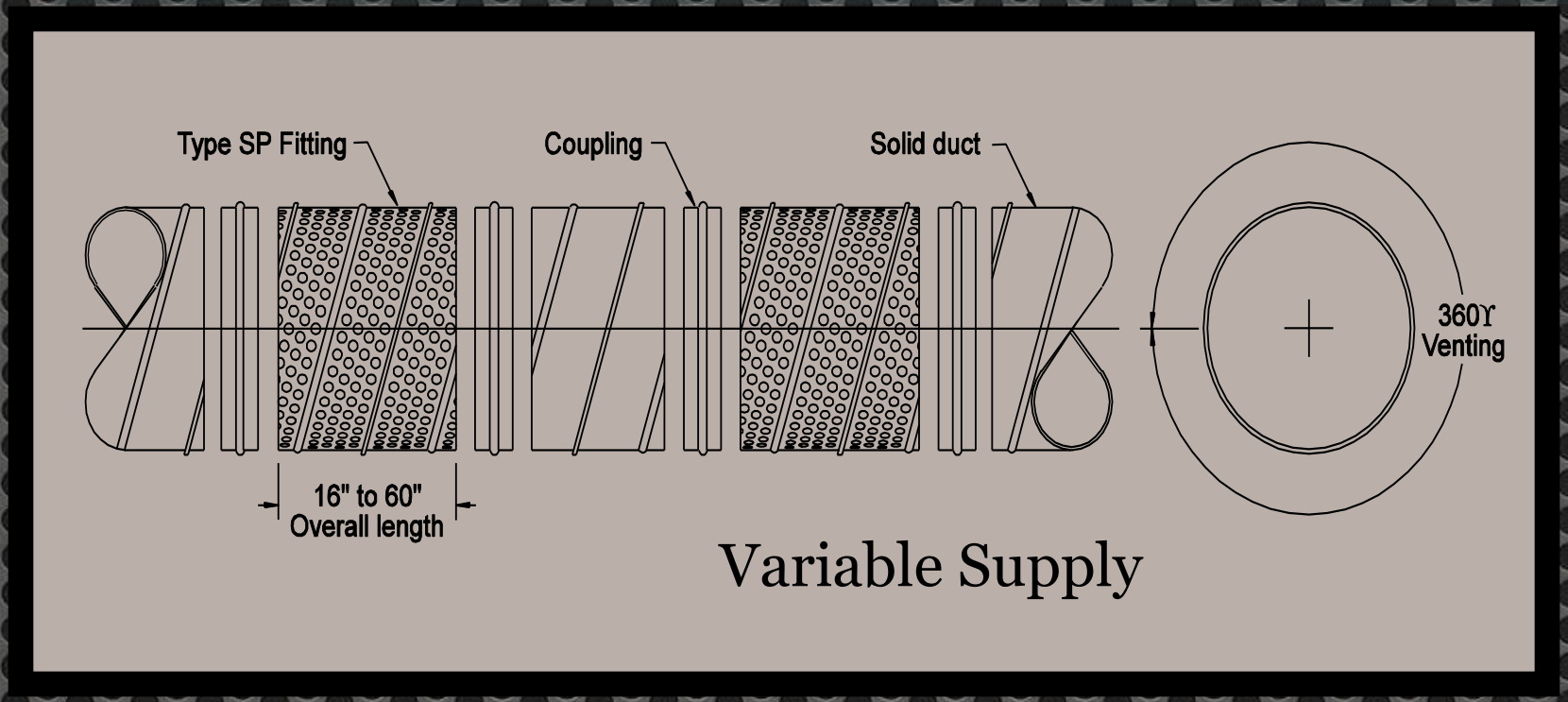
Design calculations and over all design shall note; the diffuser length, duct diameter, orifice diameters, spacing of orifice plates, and the approximate pressure drop.



Full Length 360 Supply

Metal Duct Dispersion Systems

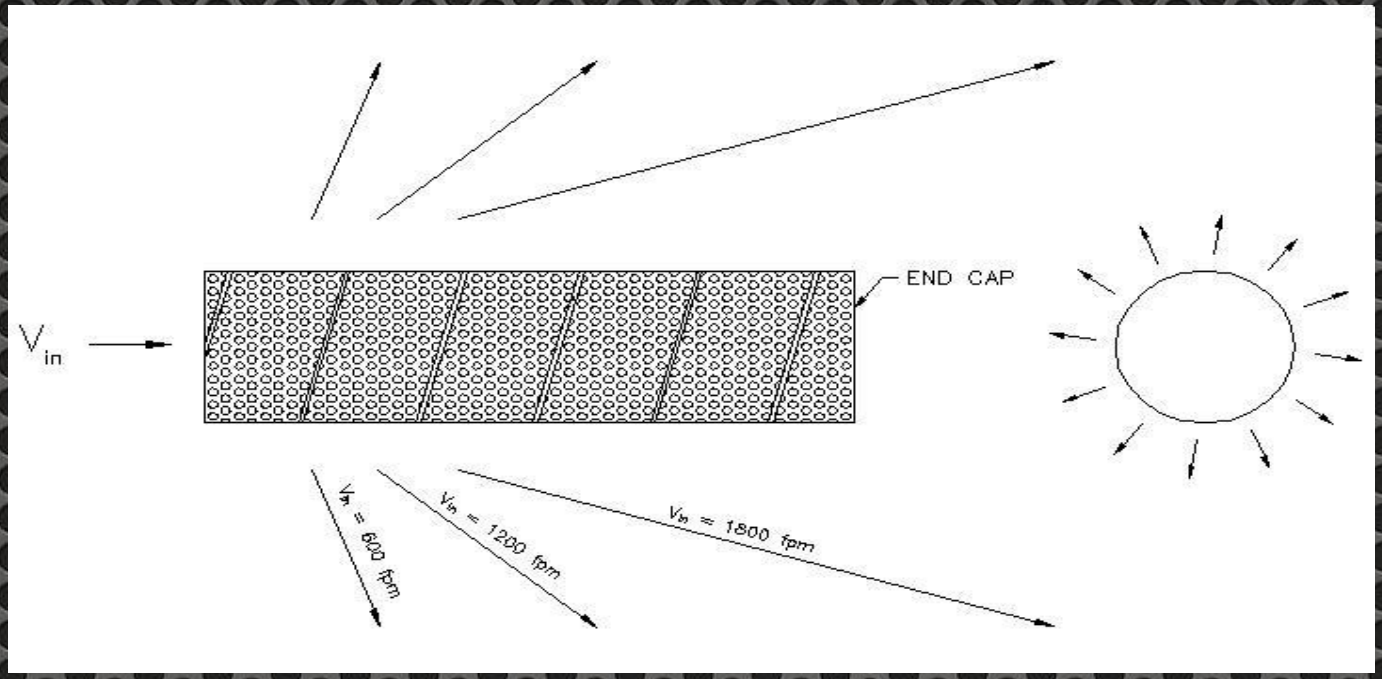
Variable length conditioning



Variable Supply

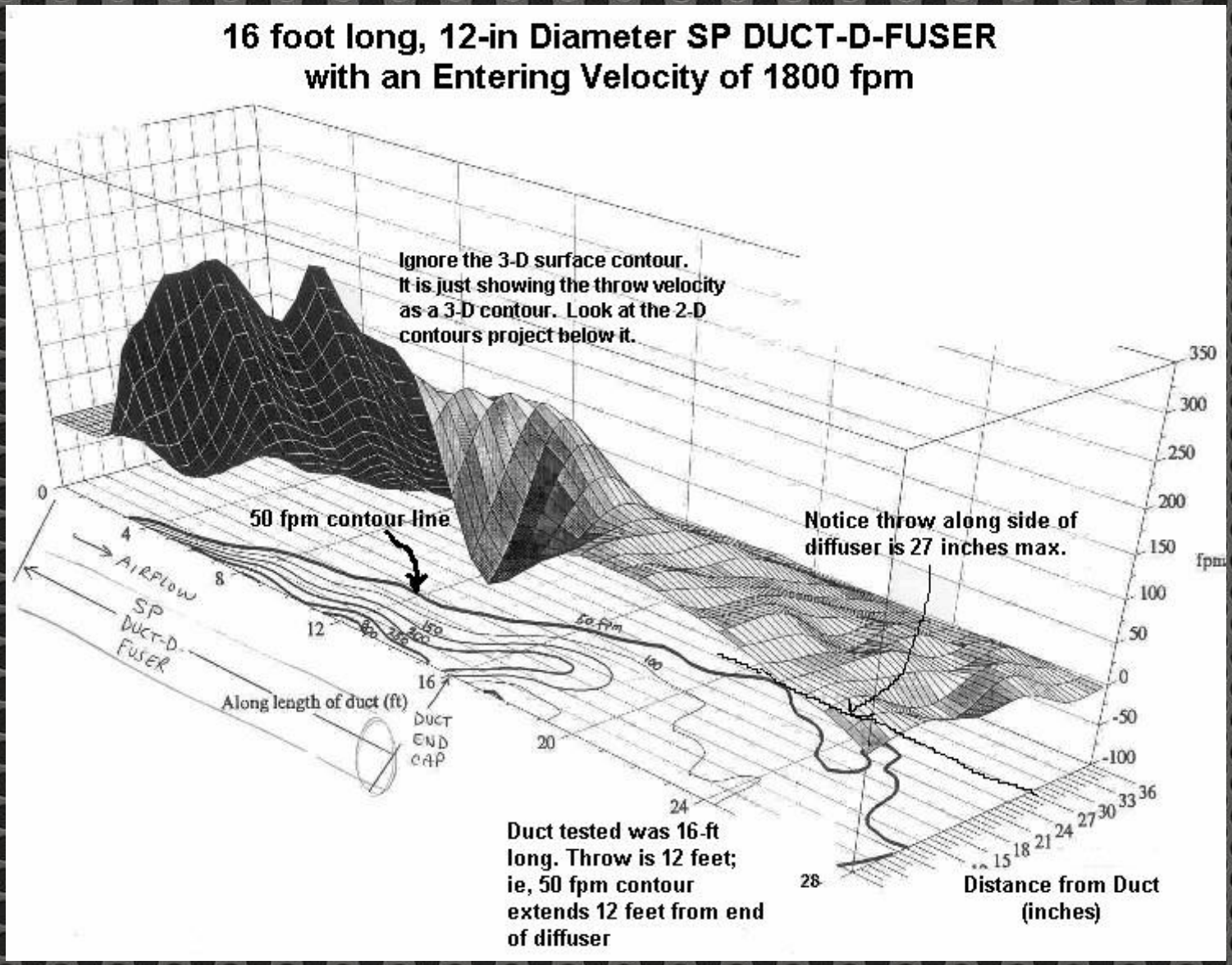
Metal Duct Dispersion Systems

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 Dispersions systems should be considered an engineered system. Static pressures vary and need to be calculated.

Metal Duct Dispersion Systems



Metal Duct Dispersion Systems

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

Generated Sound Power Level

	1	2	3	4	5	6	7	8
	63	125	250	500	1000	2000	4000	8000
Velocity (fpm)								
500	36	39	38	43	40	34	29	-
1000	39	44	44	49	47	42	38	28
2000	50	56	57	60	59	57	59	47

Metal Duct Dispersion Systems

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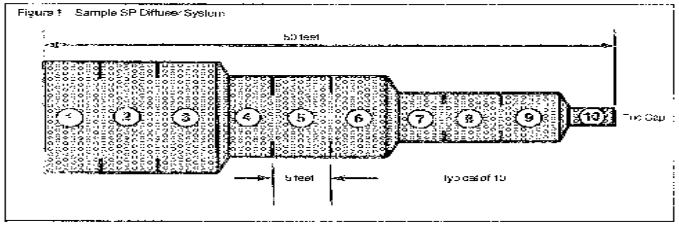
Questions?

Metal Duct Dispersion Systems

Typical Reducing metal duct dispersion system



Summary

Section Number	Duct Diameter (inches)	Orifice or Reducer Ø Dimension
1	60	54.6
2	60	54.3
3	60	53.0
4	54	49.1
5	54	47.5
6	54	46.0
7	48	39.9
8	48	37.5
9	48	33.0
10	48	End Cap

United McGill Corporation