

Air Velocity



Recommended Minimum Air Velocities:

Booth Design by Cabin or Airflow Design	Air Velocity
Enclosed spray booth	100 fpm (0.50 m/s)
Enclosed spray booth with conveyor opening	150 fpm (0.76 m/s)
Open spray booth	200 fpm (1 m/s)
Down-draft booth (similar to cross-draft booths depending on booth wall configuration)	100-200 fpm (0.50 m/s - 1 m/s)
Electrostatic and automatic airless spray booth with no operator	60 fpm (0.60 m/s)

Always consult a booth manufacturer to determine air velocities specific to your booth and application.

Air Flow and Static Pressure

Managing airflow in a spray booth is not only critical in reducing combustible vapors but essential in maximizing coating delivery while directing overspray to the exhaust bank.

A spray booth requires a minimum velocity to carry overspray to the exhaust bank. The velocity possible to achieve is determined by the fan size. Draft requirements must factor in airflow losses from openings, filters and ductwork.

Static Pressure is defined as pressure exerted by liquid or gas (water or air) when bodies on which the pressure is exerted are not in motion.⁹ Airflow within a booth (or confined area) must overcome resistance from ductwork and filters when moving from one point to another. As filters capture particulate matter, airflow decreases causing static pressure to increase. It is recommended that exhaust filters be changed when the pressure drops 0.5 in wc. However, Andreae Filters can withstand a pressure drop up to 1.03 in wc.

Recommended air velocity: 49-197 fpm (0.25-1.00 m/s)
 Recommended maximum pressure drop: 0.51 in wc (128 Pa)
 - Possible up to 1.03 in wc (256 Pa) if the fan is capable

U.S. Labor Regulations 29CFR1926.66(b)(5)(i): Criteria for Design and Construction of Spray Booths, requires that the average air velocity over the open face of the booth or booth cross section during spraying be a minimum of 80 linear fpm. Electrostatic operations may be conducted at a minimum of 60 linear fpm.

