Industrial Ventilation – Troubleshooting Fact Sheet



WHAT ARE SOME TROUBLESHOOTING TIPS FOR HOODS, DUCTS, AIR-CLEANING DEVICES & FANS?

Exhaust Hood	
Problems	**Possible Cause(s)**
Low Capture Velocity	• Hood located too far away from process or operation generating point. • Cross drafts or turbulence close to hood. • Blocked duct work. • Fan malfunction. • Increased resistance through air-cleaning equipment.
Reduced Face Velocity	• Unauthorized enlargement of the opening of an existing hood. The face velocity at the hood will decrease resulting in the escape of contaminants held back by the original face velocity.

Ducts	
Problems	**Possible Cause(s)**
Constant Plugging	• Ducts handling particulates with inadequate transport velocity (speed). • Flexible ducts used in place of rigid ducts (results in extra friction loss). • Condensation of salts. • Dented ducts. • Elbows with sharp turns. • Holes in ducts. • Disconnected or broken branch connections. • Closed or partially closed dampers (blast gates). • Addition of hoods and branches to system without making adjustments to rebalance the ventilation system.

Air Cleaning devices

Problems	Possible Cause(s)
Frequent clogging	• Improper filter type and/or installation. • Improper bag cleaning cycles. • Water intrusion into the filter. • Filter hopper not continuously emptied and cleaned. • Improper “clean start-up procedure” for new bags.
Visible dust in baghouse on the clean air side or in exhaust stack	• Bags installed improperly. • Torn or damaged bags. • Leakage between bags and housing. • General filter fabric failure.
Sudden increase in pressure drop	• Excessive dust loading due to lack of maintenance and scheduled cleaning.
Dirty re-circulated air	• Dirty filters. • Air bypassing filter section (rip or tears in filter). • Dirty air handling cabinet housing. • Exhaust stacks placed close to supply air intakes.
Visible mould or slime	• Drain pans not operating properly. • Drain pans overflowing.

Fan	
Problems	**Possible Cause(s)**
Vibration	• Out of balance fan impeller. • Material on fan blades. • Loose fan housing or foundation bolts. • Fan running backwards. • Vibrating ducts.
Noise	• Foreign material in fan housing.
Insufficient air flow	• Fan running backwards. • Fan speed too slow. • Dirty fan blades. • Actual system has more resistance than designed for. • Dampers closed. • Leaks in duct work. • Dirty or clogged filters in air cleaning device. • Obstructed fan inlets causing system effects (No straight duct runs at fan inlet or outlet). • Fan not getting adequate make-up air.
Excessive air flow	• Access door open. • Filters not in place or tears in filters. • System resistance low. • Fan speed too fast.
Fan does not operate	• Blown fuses. • Broken belts. • Loose pulleys. • Electricity turned off . • Fan impeller touching housing. • Wrong voltage. • Motor too small (overload protector had broken circuit). • Low voltage. • Fan load too large for motor. • Seized bearing.

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