

The Effects of Screens on Louver Performance

The effects of bird or insect screens on louver airflow performance is a commonly asked question. AMCA standard 500-L Airflow Performance does not consider the effects of appurtenances such as a birdscreen or an insect screen. As such, any published performance data does not take into account the effect of bird or insect screens, however, it is obvious that screens would increase airflow resistance.

To aid the HVAC system design engineer, Greenheck recently conducted pressure drop testing

on two of our most popular louver models with various types of bird or insect screens in place. The sample test included a horizontal and vertical blade louver. As one might suspect, the results differ from louver type to louver type. The chart below depicts the average increase in airflow resistance for four commonly used screen types.

Application Example

Let's assume a louver has 0.10 in. wg pressure drop at a specific volume or free area velocity. If it were an intake application, the estimated overall static pressure drop including a flattened expanded aluminum

birdscreen would be 0.112 in. wg (0.10 x 1.12). For exhaust, it would be 0.105 in. wg (0.10 x 1.05).

In an upcoming eCAPS update Greenheck intends to incorporate a "screen effect" impact on calculated pressure drop so that design professionals selecting louver products can consider the additional average airflow resistance increase caused by a bird or an insect screen.

Contact louver application engineering with any additional questions at louvers@greenheck.com or 800-373-4866.

Birdscreen Type	Flattened Expanded Aluminum Birdscreen (Intake)	Flattened Expanded Aluminum Birdscreen (Exhaust)	1/2 in. Mesh Birdscreen (Intake)	1/2 in. Mesh Birdscreen (Exhaust)	1/4 in. Mesh Birdscreen (Intake)	1/4 in. Mesh Birdscreen (Exhaust)	Insect Screen (Intake)	Insect Screen (Exhaust)
Average Airflow Resistance Percentage Increase	12%	5%	12%	7%	17%	21%	17%	17%

