

# Light Baffles



hydor

# Introduction

The control of light ingress in modern poultry farming is very important, as it allows the farmer to achieve the exact light conditions required to assist in meeting production targets.

Light levels are of particular importance within pullet houses where correct control of light intensity and duration must be precisely controlled to make it possible for the breeder birds to reach maturity at the optimum time to stimulate egg-production.

Whilst it is important that the general structure of the building is light proof, the requirement for introduction of fresh air and the extraction of stale, dirty air remains paramount. Hydor light baffles are designed to fit to inlets, outlets and wall and roof mounted fan units to reduce the ingress of light.

With correct fitting of the light baffles, light on a bright sunny day, which can reach 150-170,000 lux can be reduced to 0.1-0.15 lux, virtual total darkness.



## Features & Benefits

### Vanes

The black, smooth faced, dull finished vanes are constructed from high quality PVC for longevity and resistance to wear and tear, sunlight and high pressure washers.

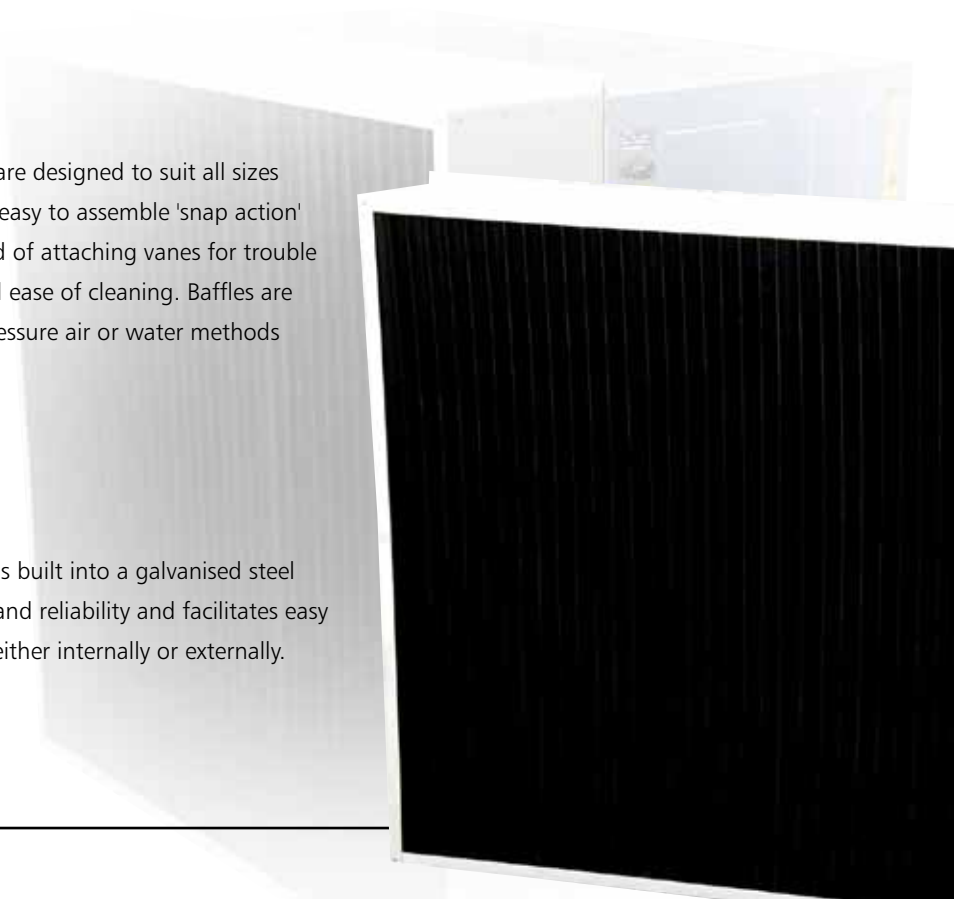
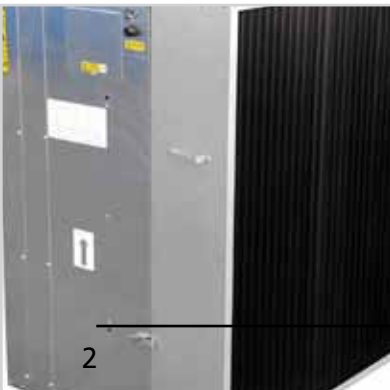
Vanes are assembled vertically to allow for natural drainage and prevention of dirt build up, with no edges or ribs to block the air flow or trap dust.

### Fittings

Hydor light baffles are designed to suit all sizes of fan or inlet with easy to assemble 'snap action' interlocking method of attaching vanes for trouble free installation and ease of cleaning. Baffles are suitable for high pressure air or water methods of cleaning.

### Casing

The vane assembly is built into a galvanised steel frame for strength and reliability and facilitates easy fitting to fan units either internally or externally.



## Specification

The aerodynamic shaped double curved vanes of the baffles allow air to pass easily through with minimal resistance whilst absorbing the light and decreasing its intensity (see Figure 1.) Vanes are set 25mm apart to give optimum light reduction and low resistance to air flow.

Vanes are assembled vertically to allow for natural drainage and prevention of dirt build up, with no edges or ribs to block the air flow or trap dust.

Baffles can be fitted to a variety of fans, inlets and outlets either internally or externally as the application requires. Hydor can manufacture and supply light baffles to fit any opening and meet all your bespoke ventilation requirements.

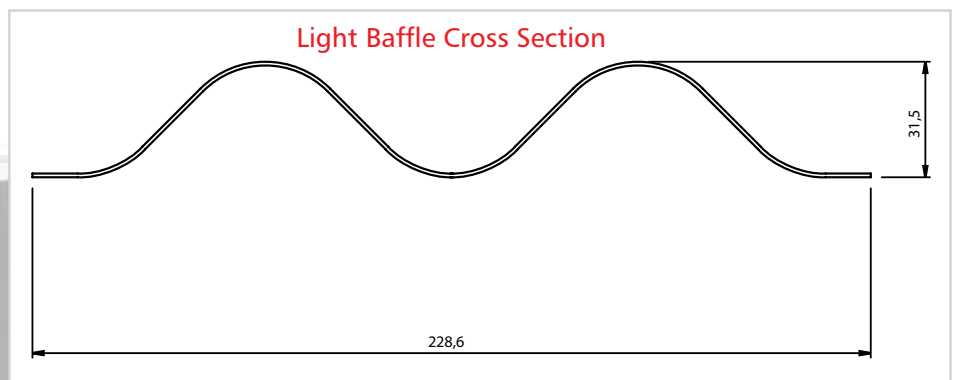


Figure 1.

Due to the pressure drop or resistance of the light baffle the larger the area of the baffle the lower the resistance. This is because resistance (Pa) is directly proportional to the velocity<sup>2</sup> of the air passing across or through the obstruction.

The slower the speed of the air, the less resistance. This should be borne in mind when adding baffles to fans and inlets. Figure 2 below provides an indication of the Pressure Drop against air velocity.

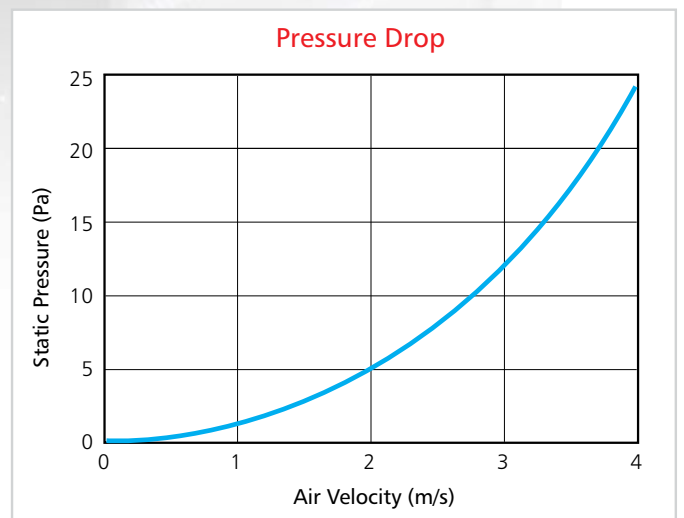


Figure 2.

# Applications

Hydor Light Baffles are suitable for installation with Hydor Agri-Jet roof extract fans, Hydor Side Wall Easi-Fit wall mounted units, Hydor HV Belt Drive fans and Hydor inlets. Ideal for varying methods of ventilation including Conventional, Reverse-Flow, Tunnel and Cross-Flow Ventilation.

## Reverse-Flow Ventilation (Figure 3.)

Here fans are mounted in the side walls and inlets in the roof.

The Hydor Side-Wall unit is a complete fan unit to mount in the wall of the house, with internal shuttered door and external louvred outlet to reduce the direct sunlight entering the house. Both of which can be easily removed for cleaning.

Hydor Light Baffles are fitted to the external side of the Side-Wall units. The external chevron unit is removed and the light baffle fitted in its place using the existing retainers and the over centre clips fitted to the baffle. Due to the angular nature of the discarded chevron unit and the smooth aerodynamic vanes of the new light baffle the additional resistance can be ignored.

Light Baffles should also be fitted to the roof air inlets if necessary.

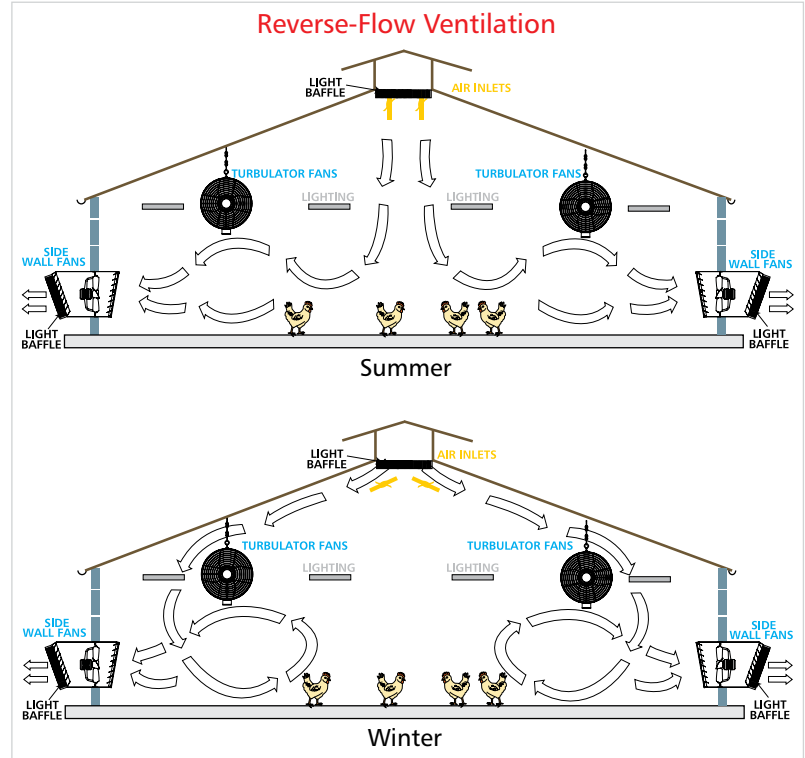


Figure 3.

The Side Wall Easy-Fit ventilation unit is a high velocity exhaust fan unit for side wall installation, specifically designed for ease of installation on site, increased service life and outstanding performance for poultry houses.

Each unit extracts air at high velocity, deflecting it outwards and downward to throw unclean air away from the building. This reduces the amount of dust deposit around the fan, and in turn removes problems of smell, unsightliness, pollution and consequent damage to cladding materials.



## Roof Extract Ventilation

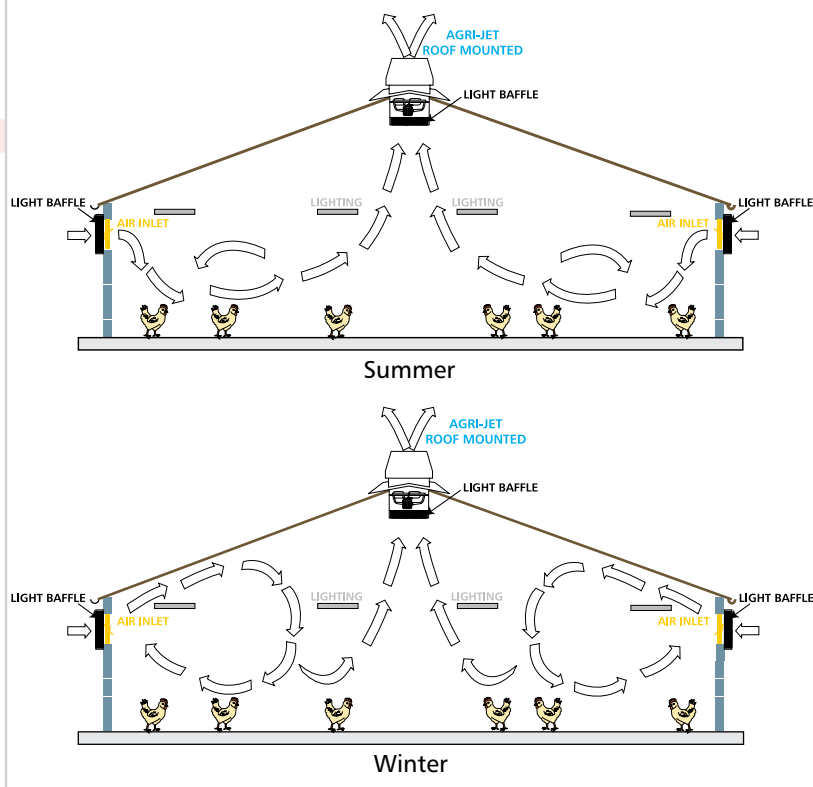


Figure 4.

## Roof-Extract Ventilation (Figure 4.)

Here fans are mounted in the roof with inlets along the two side walls. The Hydor Agri-Jet unit has advantages for use in this application; since it is easy to fit, it presents near zero resistance to the fans when operating, expels the stale air vertically into the atmosphere thus eliminating dust falling on the roof sheeting, which could be washed down to the gutters and fouling the soil through the soakways.

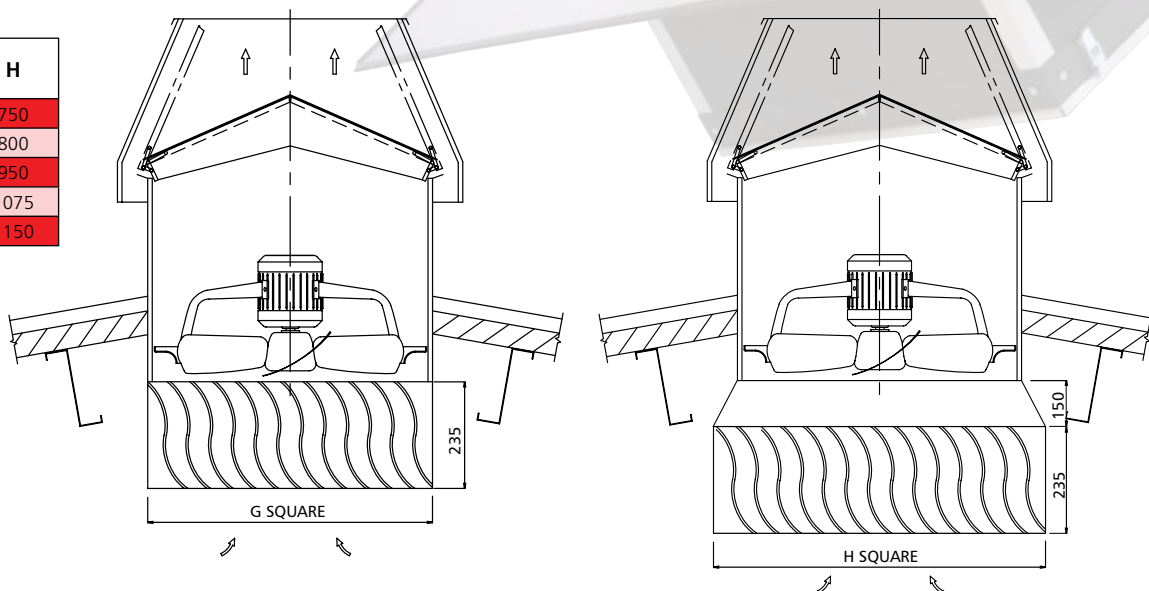
The Agri-Jet Roof Mounted unit is a high velocity jet extraction unit for on or off-ridge installations. The design of the inlet ensures that it operates at high efficiency by maximising air flow and operating at low back pressure to minimising operating costs. Stale air is expelled through the cowl to a height of approximately 20 metres, ensuring that dust, moisture, ammonia and smells are dissipated.

The Light Baffle is attached to the internal side of the Agri-Jet unit at the base of the fan trunk, connected by over-centre clips and retainers. The additional resistance created by the light baffles must be taken into consideration when selecting the fans.

## Dimensions - Agri-Jet and Light Baffle

To reduce the resistance caused by the light baffle, the size of the baffle area can be increased by a factor of 1.35 compared to the standard size (as per the trunk sizing). Increasing the size reduces the air speed which is critical to resistance. Hydor manufacture an optional Light Baffle to be fitted to the base of the Agri-Jet, which reduces the resistance to below 20Pa. Dimensions (H Square) are shown in the chart below.

Agri-Jet Fan Size	G	H
450	553	750
500	594	800
630	705	950
710	794	1075
760	853	1150



# Applications

## Tunnel Ventilation (Figure 5.)

In this system large belt-driven fans are installed in the wall at one end and inlets in the wall at the opposite end, allowing the air to be drawn along the length of the house.

Tunnel Ventilation uses large belt-driven fans mounted in the end walls and the air is drawn along the length of the house from the inlets situated at the cold end as near bird height as possible. The disadvantage with this system is the possible temperature gradient along the house from one end to the other. With this in mind a combination of conventional and tunnel ventilation is used.

The Hydor HV Belt Drive fan unit is specifically designed to ventilate larger buildings on the farm, such as tunnel ventilated housing, where substantial amounts of air are moved at low pressure with minimal energy consumption.

The Hydor Light Baffle is attached to the internal side of the fan unit. Removal of the fan units internal guard reduces the restriction of airflow caused by the wire mesh and allows the baffle to be fitted without consideration of its increased resistance.

Baffles are attached using over centre clips and retainers for easy installation and removal for cleaning.

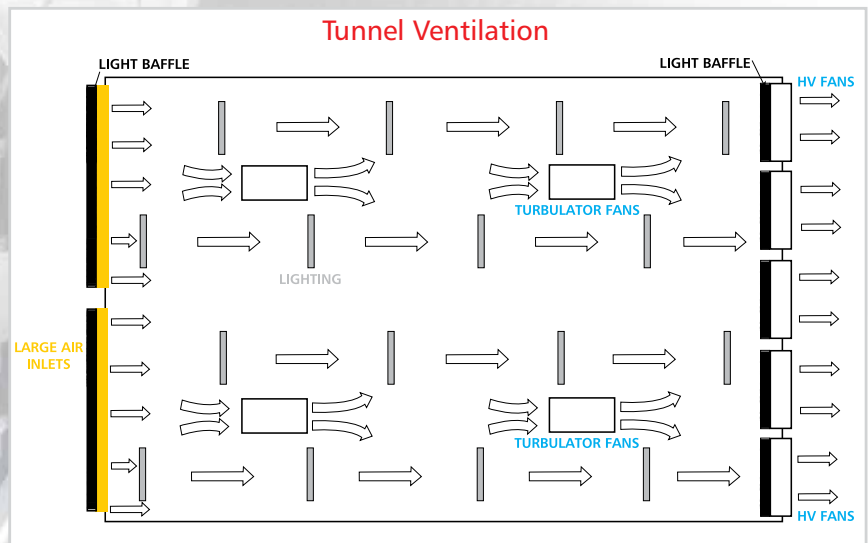
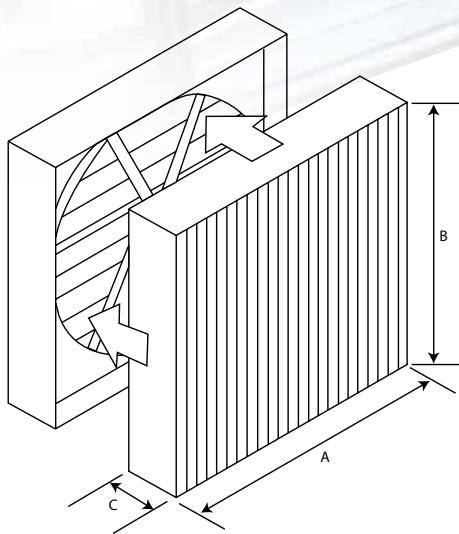
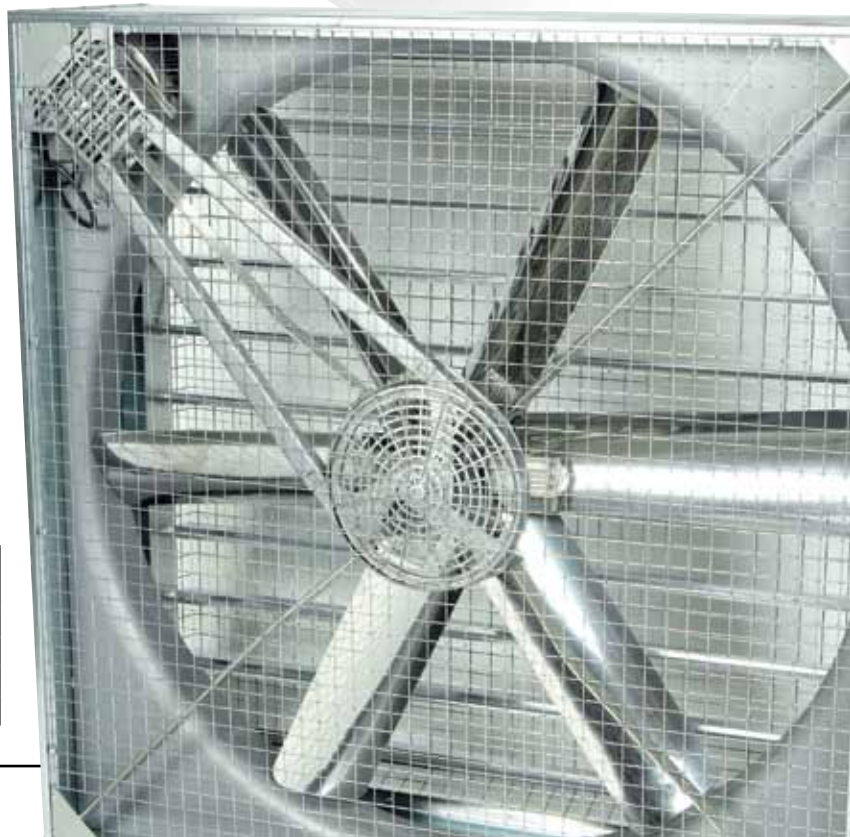


Figure 5.

## Dimensions - HV Fan and Light Baffle



HV Fan Size	Model	A	B	C	Weight
1250	HV1250 H (1.5kW)	1380	1380	330	60
1250	HV1250 (1.1kW)	1380	1380	330	60
1000	HV1000	1150	1150	330	40
800	HV800	960	960	330	28





### Cross-Flow Ventilation (Figure 6.)

The Hydor High Flow Air Inlets control the direction, path and distribution of fresh air into a building. Inlets are perhaps one of the most important parts of your ventilation system. By opening or closing the inlet, you regulate the volume of the air jet, the air velocity, and (therefore) the distance the air flows into the building.

Hydor Inlet systems allow more air or less air to enter according to seasonal changes, by adjusting the inlets to maintain the air flow path and velocity. Inlets can be adjusted manually or automatically as required by temperature changes.



Light Baffles are fitted externally to each inlet, However the size of the inlet and the maximum air speed passing through them must be known to enable an accurate resistance to the system to be calculated. Most systems will have been installed using low resistances as the inlets are open and unimpeded to the airflow, however if higher pressures are being used by restricting the airflow through the inlet, the additional resistance for the baffle may increase the static pressure above the normal working pressure of the fans being used.

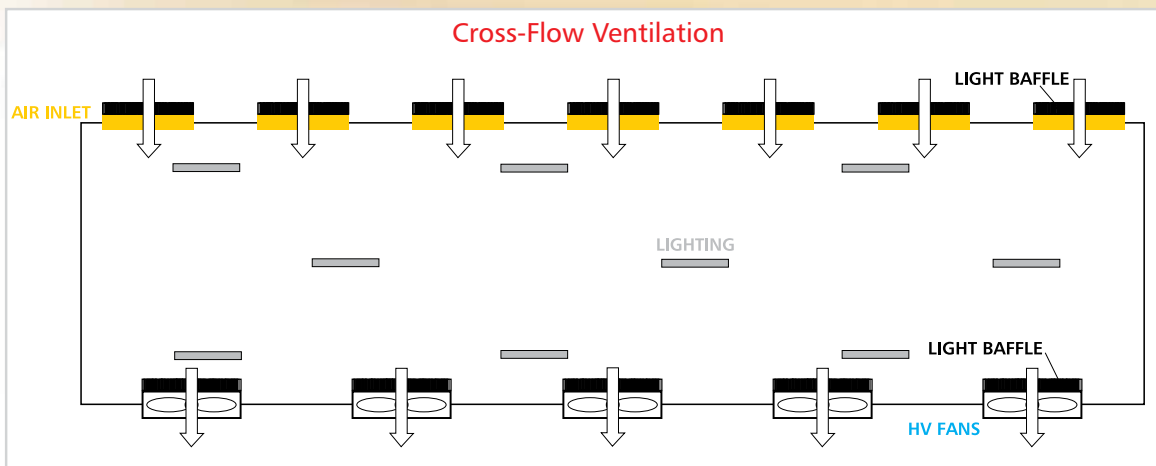
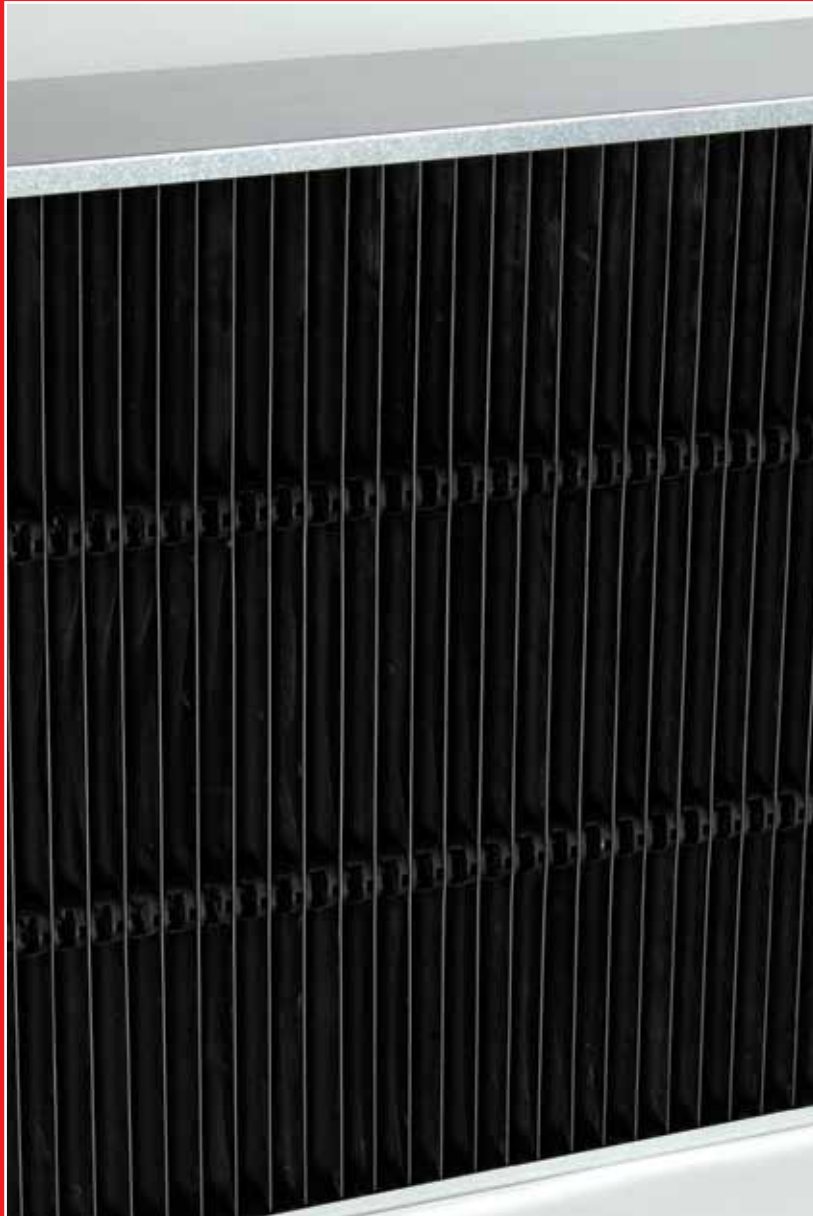


Figure 6.



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