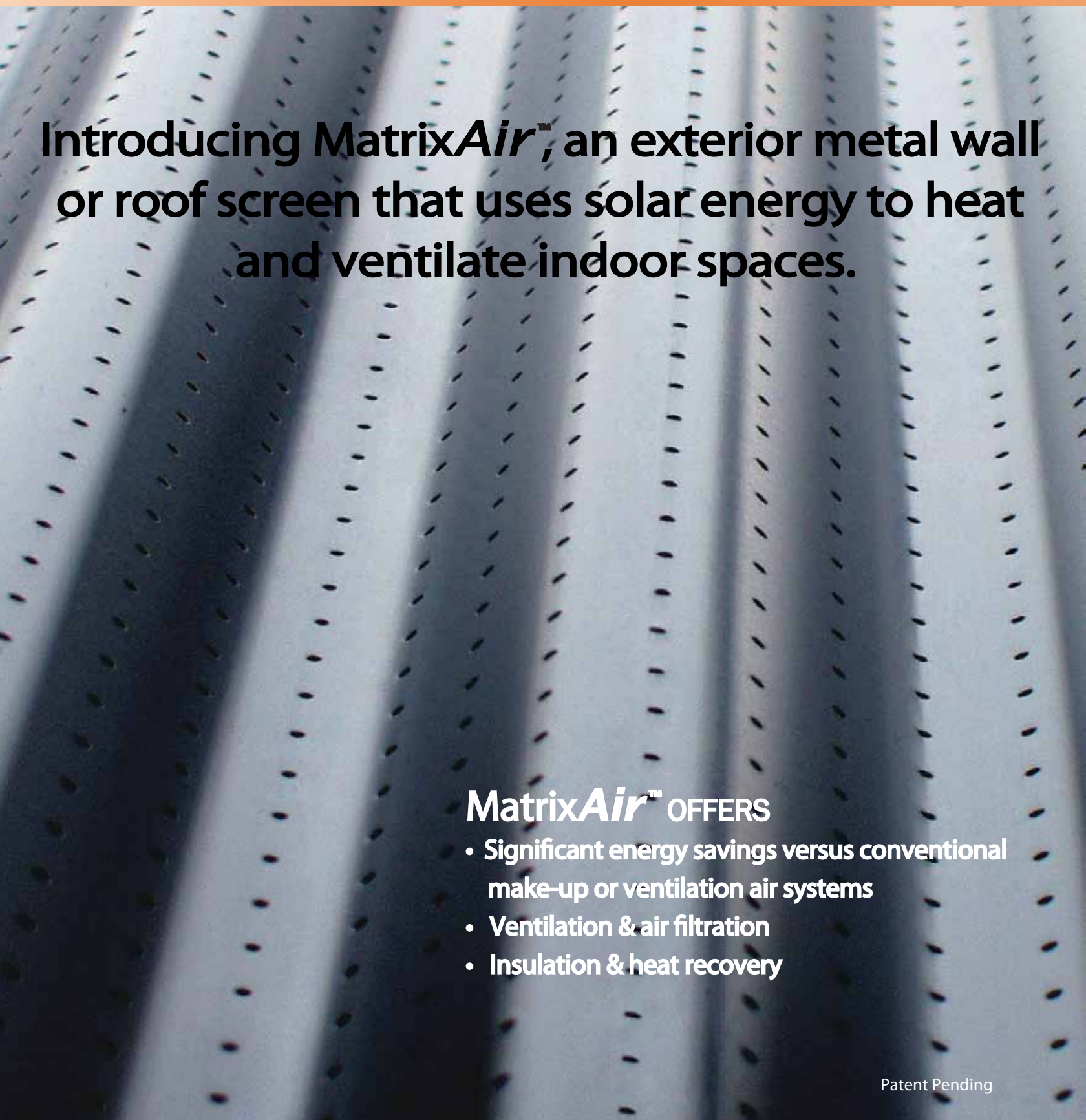
MatrixAir™
Solar Air Heating System



Introducing MatrixAir™, an exterior metal wall or roof screen that uses solar energy to heat and ventilate indoor spaces.

MatrixAir™ OFFERS

- Significant energy savings versus conventional make-up or ventilation air systems
- Ventilation & air filtration
- Insulation & heat recovery

Patent Pending

ÉNERGIE MATRIX ENERGY

For more information visit www.www.matrixairheating.com
Toll Free: 1-866-630-5630 email: info@www.matrixairheating.com

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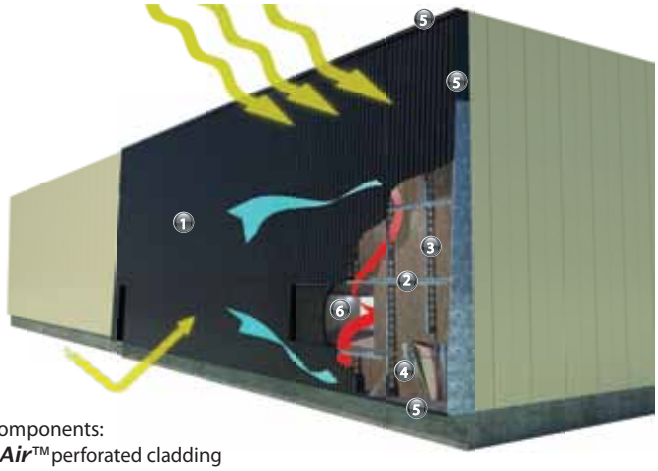
The MatrixAir™ system's operation

Outside air is drawn through perforations in the dark-colored, sun-warmed metal façade. As the air passes over and through the panel it is heated. A ventilation fan creates negative pressure in the cavity behind the panel to draw air through the holes. During summer operation our system configuration reduces the hot air that may enter the HVAC system thanks to the typical placement of our air outlet in the lower portion of the collector.



Typical components:
1. MatrixAir™ perforated cladding
2. Horizontal Z bars
3. Perforated vertical Z bars
4. Foil liner
5. Top, bottom and side wall flashing
6. Bypass damper (optional)

IDEAL SCENARIOS FOR THE MatrixAir™ SYSTEM

- New building construction or renovation
- LEED projects (Up to six LEED points attainable)
- Improved indoor air quality is required
- Installation of metal exterior walls or replacement of exterior siding
- Environmental concern
- Desired enhancement of corporate image

CONFIGURATIONS

Ventilation and Make-up air systems

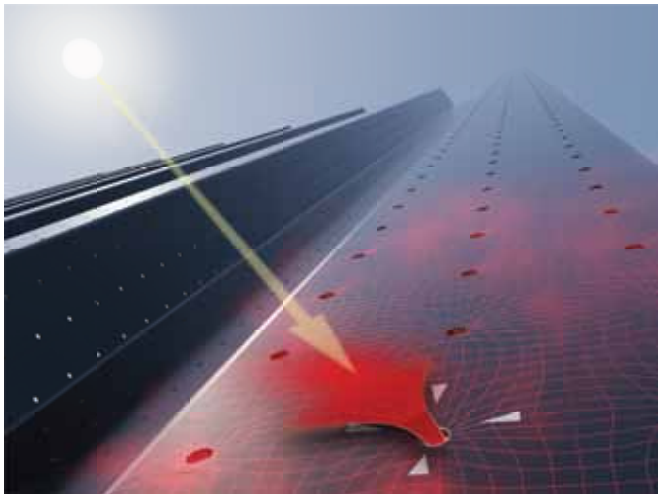
In most cases the MatrixAir™ cladding will be used in a façade installation to preheat incoming make-up or ventilation air though our system may also be integrated into architectural rooftop fences or roof top air intakes to accomplish the same result. The heated air may be directed to a ventilation system for distribution through perforated ducts to destratify hot air that accumulates at the ceiling, thus reducing heat loss through the roof and exhaust while providing uniform air distribution and temperature.

Process heating

Thanks to the wide range of air flow and temperature combinations possible using MatrixAir™, it may be readily incorporated in process air heating where such variations are required for applications such as crop drying.

Space heating

In hybrid applications MatrixAir™ cladding not only provides fresh air heating but may also be configured for domestic hot water or space heating as well, particularly in milder climates or for sports complex applications, for example.



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PRINCIPAL FUNCTIONS

- Significant energy savings versus conventional make-up or ventilation air systems
- Ventilation & air filtration
- Insulation & heat recovery

Typical applications:

- Stand alone ventilation air systems
- Visual make-up air unit fences
- Process air heating
- Air preheater for:
  - Make-up air systems
  - Heat pumps
  - Geothermal loops
  - Hot Water

FEATURES & BENEFITS

- Wide assortment of profiles and colours adjust easily to a wide variety of building scenarios and aesthetics
- Integrating the solar collector into the building façade yields cost efficiency
- Adaptable to a wide variety of single use or hybrid (solar air and water heating) applications
- The electrostatic effect of the air moving through the perforations provide excellent fresh air filtration properties further improving indoor air quality without increased maintenance cost

*

PERFORMANCE*

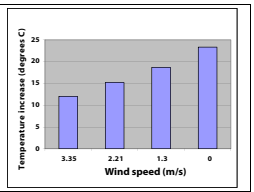
During sunny days, Matrix***Air***™ systems can preheat intake air by 30˚ to 50˚F (17˚-30˚C), over ambient temperatures depending on the flow rate. In northern climates snow will reflect up to 70% of the available solar radiation, and 40% of this radiation is reflected on the cladding surface, substantially increasing the system's performance. The following graph shows the temperature rise attainable versus air flow/ft^2 of collector area at various sunlight levels. Under constant conditions energy output is directly related to the sunlight levels striking the cladding.

The Matrix***Air***™ system works on cloudy days, since even diffused light can represent up to one quarter of the total solar radiation available on a sunny day. Our system can even help cool your building in the summer. The cladding shades the interior wall and the hot air that rises to the top of the wall escapes through the perforations, keeping the interior wall much cooler. Bypass dampers are used to bring unheated ambient air inside the building directly from outside, providing superior air quality even in summer.

Test results information for Matrix*Air*™ TR – solar air heating collectors

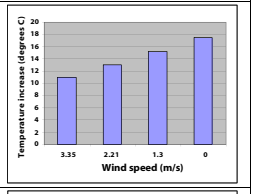
A.) Test conditions:
Airflow suction rate = 3 CFM/ ft² = 15.234 (l/s)/m²;
Solar Radiation = 900 W/ m²

Wind speed		***Temperature rise***	
	m/s	***°C***	***°F***
High	3.35	12.07	21.73
Medium	2.21	15.28	27.50
Low	1.30	18.74	33.73
None	0.00	23.32	41.98



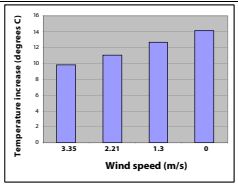
B.) Test conditions:
Airflow suction rate = 5 CFM / ft² = 25.39 (l/s)/m²;
Solar Radiation = 900 W/ m²

Wind speed		***Temperature rise***	
	m/s	***°C***	***°F***
High	3.35	10.96	19.73
Medium	2.21	13.00	23.40
Low	1.30	15.27	27.49
None	0.00	17.45	31.41



C.) Test conditions:
Airflow suction rate = 6.57 CFM / ft² = 33.363 (l/s)/ m²;
Solar Radiation = 900 W/ m²

Wind speed		***Temperature rise***	
	m/s	***°C***	***°F***
High	3.35	9.80	17.64
Medium	2.21	11.06	19.91
Low	1.30	12.67	22.81
None	0.00	14.12	25.42



* CSA Performance Factor 0.86

* Source: Bodycote Testing Group, May 2007

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DESIGN CRITERIA

Matrix***Air***™ will effectively provide heated air at ventilation rates ranging from 3 - 9 cfm/ft^2 of Matrix***Air***™ collector area with a maximum efficiency achieved near 7 – 8 cfm/ft^2. For example, a 2500 ft^2 wall measuring 100 x 25 ft high could be configured to provide between 7500 and 22500 CFM of air at inlet temperatures of 17 to 30˚C above ambient temperatures.

MATERIALS AND FINISHES

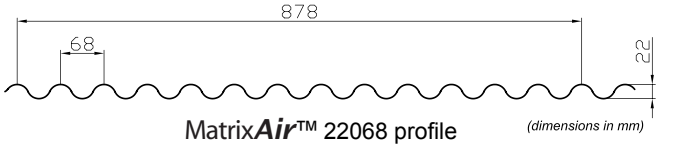
We offer a wide range of standard profiles in a host of Standard Industrial Colours (SIC). Standard thickness is 26 ga (0.024") galvanized steel and other thicknesses and materials are available.

The coating on the Matrix***Air***™ cladding is an 8000 series, baked-on finish that's formulated for its solar absorption properties and resistance to ultraviolet radiation. Performance as indicated is achieved using the standard black finish.

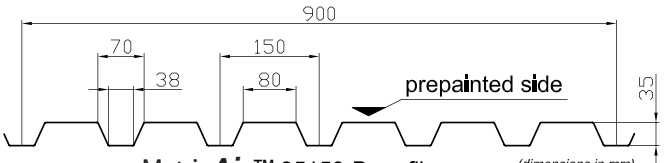
Consult your Matrix Energy representative for the expected performance of the Matrix***Air***™ system for your project.

Patent Pending

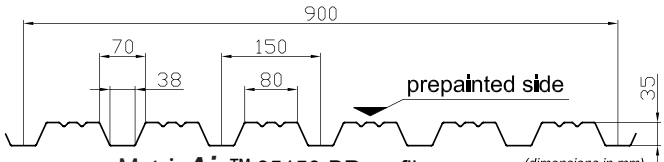
AUTHORIZED MATRIX ENERGY DISTRIBUTOR:



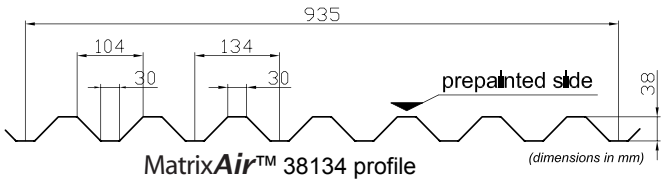
Matrix***Air***™ 22068 profile *(dimensions in mm)*



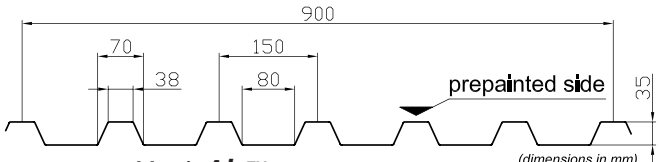
Matrix***Air***™ 35150-B profile *(dimensions in mm)*



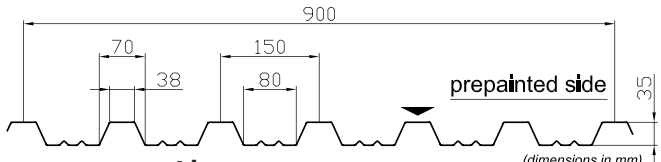
Matrix***Air***™ 35150-BR profile *(dimensions in mm)*



Matrix***Air***™ 38134 profile *(dimensions in mm)*



Matrix***Air***™ 35150-S profile *(dimensions in mm)*



Matrix***Air***™ 35150-SR profile *(dimensions in mm)*

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