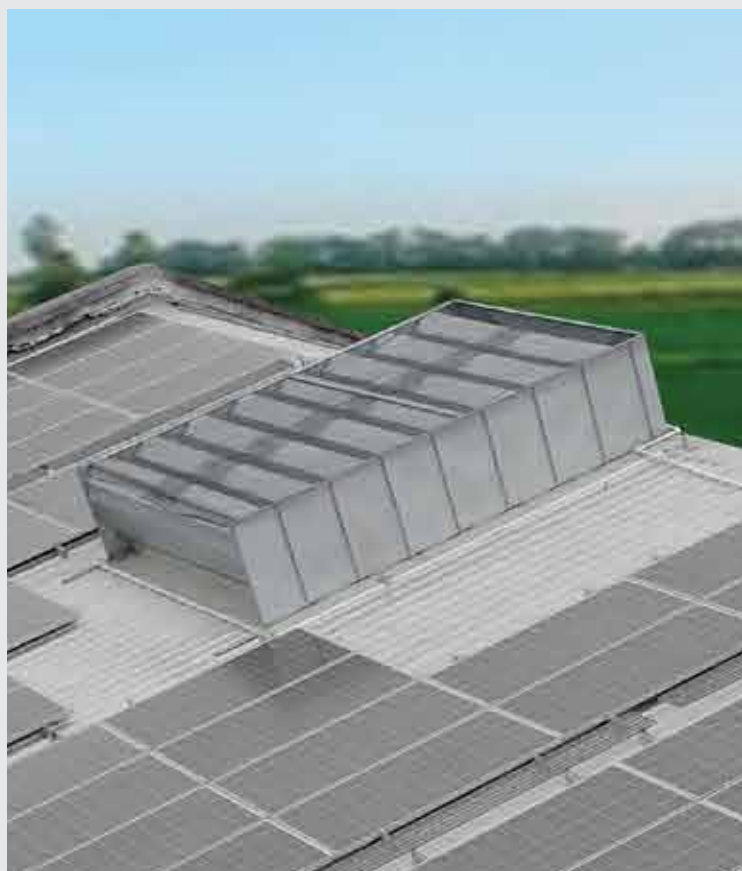


# We know the *Art of* Gravity Ventilation



No Power. No Moving Parts. No Maintenance.  
Fit and forget.



## **GRAVENT**

Bespoke Ventilation Systems

Scan for Website



# GRAvity VENTilation

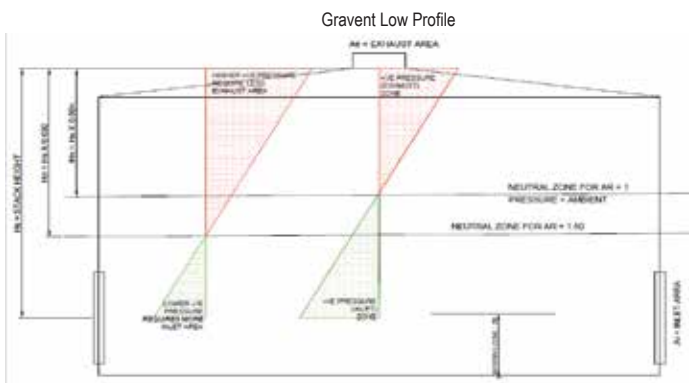
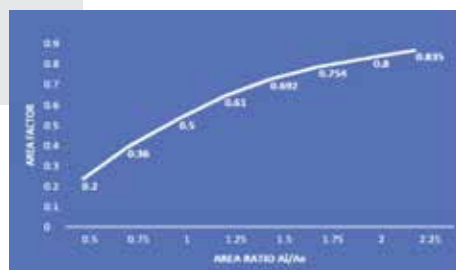
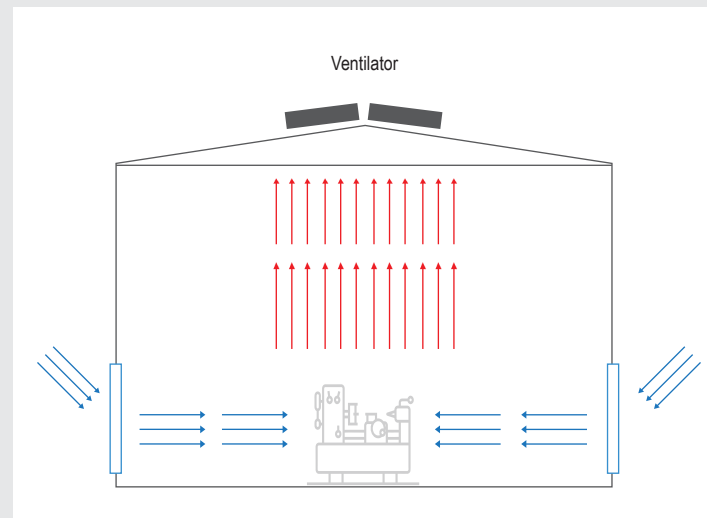
## WORKING PRINCIPLE

GRAVENT works on the 'stack or chimney effect' that is available in all buildings which have a process going on in them. All work done is released to the building as heat which results in a rise in temperature inside the building. The Ventilation System Design (VSD) for GRAVENT uses this heat as well as the solar heat gained from the building envelope to provide the motive force for exhaust.

This heated air being lighter, since density is inversely proportional to temperature, rises and accumulates in the roof space. An exhaust opening provided at the highest point will exhaust this hot air which in turn draws in fresh air from low level inlet openings.

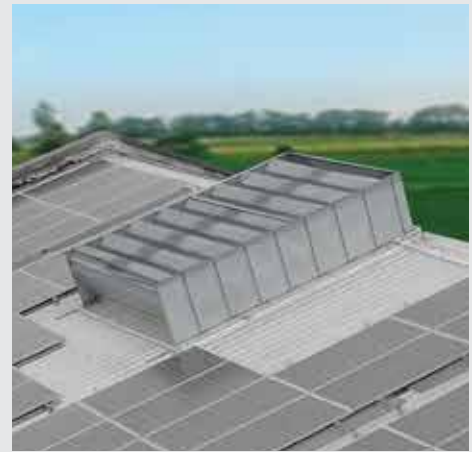
While there will be an aspirating effect of external wind, we do not consider this in design since its cumulative increase in capacity <15%. The system should work in worst case which is still wind.

Constant Mass device – For a given sensible heat load, an oversized vent will result in a reduction in exhaust temperature and velocity with an increase in the density of exhaust air. On the other hand, an undersized vent will result in an increase in exhaust temperature and velocity with a corresponding decrease in the density of exhaust air. The mass of air being handled remains the same. It is safer to undersize the vent to maintain a higher pressure at the exhaust point as an added precaution to prevent rain ingress provided care is taken to ensure that the temperature of the hot air plenum in the upper part of building does not affect the temperatures in the working zone.



Neutral plane concept – Exhaust needs a positive pressure below the exhaust to drive out the air and an inlet through the low-level inlets needs a negative pressure inside the building at the inlet level. This means that there has to be a plane somewhere in between which is at neutral (ambient) pressure. The depth of the plane determines the effective stack height available for ventilation and is determined by the Area Ratio ( $A_r$ ) = Inlet Area ( $A_i$ ) / Exhaust Area ( $A_e$ ).

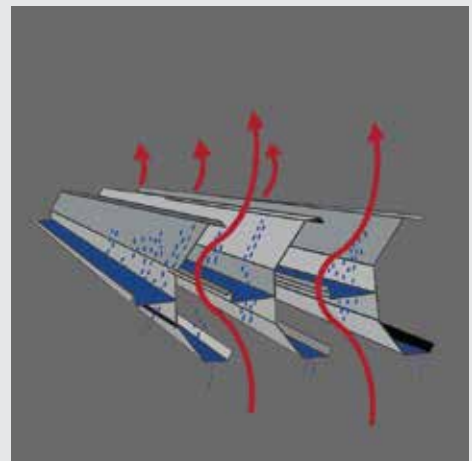
## LOW PROFILE VENTILATORS



Low Profile design allows this sheet metal ventilator to sit just 940 mm above the roof line. It is designed for a wind velocity of 50 m/sec (180 kmph) which exerts a pressure of 2.039 kN/m<sup>2</sup> on the vertical face. The resultant maximum support reactions at the any mounting point are restricted to

- o Uplift: 1.56 kN
- o Downforce: 1.20 kN
- o Horizontal Thrust: 1.10 kN

cross section view

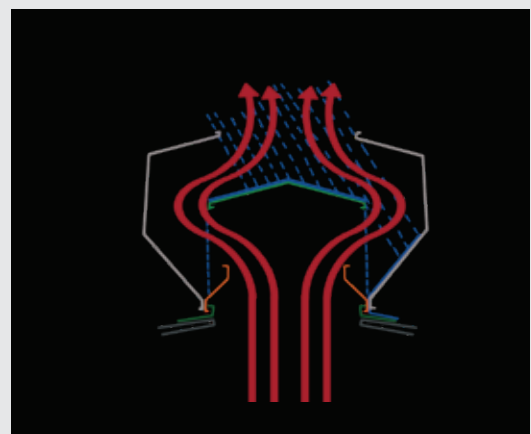


## RIDGE VENTILATOR



Protected monitors (side openings are protected against wind) where the final exhaust opening is top facing and the air path through the ventilator is precisely defined for minimum friction losses. made by Gravent.

cross section view



## Suggested Specifications

GRAVENT ventilators are designated as follows:

### GV - AA - XX YY -BB - CC - DD

The nomenclature conveys the essential features of the specification

- GV GRAVENT Ventilators
- AA Type Code
  - R Ridge Ventilator Installed along Ridge
  - DS Ridge Ventilator Installed Down the Slope
  - LP Low Profile installed Down the Slope
  - LR Low Profile installed along Ridge
- XYYY Size
  - Throat width in mm for Ridge Ventilators
  - Nominal width & number of blades for Low Profile Ventilators
    - i.e. 30 06 means Width 3000 mm with 6 blades
- BB Material
  - Z Galvalume Sheet 0.47 mm AlZn - 150gsm, 550 mPa
  - G Galvanized Sheet 0.50 mm Zn - 120 gsm, 240 mPa
  - A Aluminium Sheet 0.71 mm Alloy AA 3105-H4
- CC Screens
  - GC Galvanized Crimpnet 25 x 25 x 1.60 Ø wire
  - AC Aluminium Crimpnet 25 x 25 x 2.00 Ø wire
  - PPS Plastic rigid mesh 25 x 25 diamond
  - NO No screens
- DD Finish
  - MF Mill Finish
  - PPS Pre Painted Sheet - Pure Polyester Paint
  - XPS Pre Painted Sheet - Silicon Modified Polyester
  - PC Powder Coated Finish - Pure Polyester Powder

Supply and Install gravity ventilators Gravent Low profile as manufactured by **Albraco** (or equivalent). The Gravent Low profile will have a double layer blade arrangement to prevent rain ingress. The ventilator be designed to cover a 3 roofsheet (3000 mm) wide gap in the roof sheeting. The length of the ventilator will be as per detailed system design and will start at the ridge (topmost) purlin and end at a purlin to be decided. The no of pitches will be to suit length. The general specifications and material of construction will be as per the detailed Nomenclature and specifications attached. The ventilator to be self-supporting over its dimensions and be designed for a wind speed of 50m/sec. The support reactions at the mounting points should be declared by vendor for approval by structural consultant.

### Our Clientele

#### Specifiers



AEDBM Consultants



JRCC Consultants

L&S Architects

#### End Users



Gokaldas Images



PPAP Automotive



Chamundi Diecast



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Bespoke Ventilation Systems

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