

# FREE OPEN AREA MEASUREMENT REPORT

# VENT SYSTEMS' G1200N OVER FACIA VENT



Report No.	Rev.	Date	Project	Client	Author	Signature
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NOTES:

- This report should be considered with the specific details of the G1200N Facia Vent of VENT Systems. Any modifications to the system require new analysis.
- The environmental conditions in this analysis are outlined in supporting documentation and may not precisely represent the final project design.
- This document is the property of Deratec Pty Ltd and should be used in accordance with the project engagement terms.

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#### 1. OVERVIEW

This comprehensive report aims to present the measurements of the Vent Systems; G1200N and Over Facia Vent (OFV) with a particular focus on confirming its linear Free Open Area (FOA). The objective of this evaluation is to ensure compliance with the minimum ventilation requirements as stipulated in the NCC/F8D5 table (Ventilation of roof spaces). The G1200N OFV are vital components in roof ventilation systems, and their effectiveness in facilitating airflow is crucial to its successful application.

The G1200N OFV is widely utilised in various architectural and construction projects. This report outlines the findings of measurements conducted under two specific scenarios: one with the inclusion of Aluminum BAL mesh and the other without. These measurements have been meticulously carried out using vernier calipers measurement tools with an impressive accuracy level of 0.1mm. This precision ensures that the recorded measurements are reliable and can be confidently used for further analysis and decision-making in real-world applications.

#### 2. G1200N OVER FACIA VENT

The VENT Systems Over Fascia Vents G12000N is one of the most practical and cost-efficient methods of ventilating the eaves.

#### Features:

- Free open area does not reduce with application of BAL Mesh
- Meets NCC DTS requirements
- > Releases hot air from roof voids and manages condensation
- > Compatible with concrete tile and Colourbond roof types
- > Used on History of use of over 40 years on concrete tile roofs
- Creates redundancy against blockage
- > Can be used in isolation or as part of a passive ventilation system
- Can be used to form part of a passive ventilation system that works year round with no moving parts or energy consumption
- Easy to install
- > Not visible as hidden by spouting/gutter

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VENT SYSTEMS Over Fascia Vent – G1200N



### 3. FREE OPEN AREA CALCULATION

To accurately determine the FOA of the G1200N OFV, a physical sample measuring one metre in length was employed as the basis for measurement. Two manual and digital vernier callipers were utilised, each boasting an uncertainty level of 0.1mm, as showcased in the figure below:



Between the inlet and outlet, measurements of three distinct airflow areas (locations A, B and C) have been conducted and documented, as shown in the table below. It's important to note that the G1200N facia vent is designed to meet the National Construction Code (NCC) and industry standards. This commitment to providing optimal ventilation is a hallmark of the G1200N's design and performance.



The following table shows the measurements' details:

Location	А	В	С
Value (mm²)	21,120	11,088	11,500
Uncertainty (mm <sup>2</sup> )	±140	±330	±140

G1200N facia vent is allowing for a minimum free open area of 11,088 mm<sup>2</sup> with an acceptable tolerance of  $\pm 330$  mm<sup>2</sup>.

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### 4. BAL COMPLIANCE

In the pursuit of a thorough analysis of G1200N the influence of the Aluminium BAL mesh, represented in the figure below, was factored into the measurements.



Measurements conducted with consideration of the mesh wire thickness (0.4mm) resulted in a calculated FOA of  $86\% \pm 1\%$ .



The presence of Aluminium BAL mesh affects the FOA at the inlet only (referred to as location A) according to the following table:

Location	А	В	С
Value (mm <sup>2</sup> )	18,163	11,088	11,500
Uncertainty (mm <sup>2</sup> )	±330	±330	±140

G1200N over facia vent is allowing for a minimum free open area of 11,088 mm<sup>2</sup> with an acceptable tolerance of  $\pm$ 330 mm<sup>2</sup> with BAL compliance.

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#### 5. COMPLIANCE NCC/F8D5 (DTS)

Tables F8D5 in NCC Volume One and 10.8.3 of the Housing Provisions provide detailed requirements for ventilation openings for roofs with varying pitches. These tables outline specifications for the location of sarking and/or primary insulation level relative to roof space, minimum roof space height, and deemed adequate ventilation to minimize condensation risk. Importantly, Table F8D5 reflects minimum ventilation openings for roofs, with no limitation on the use of over-fascia vents.

Table F8D5 Roof space ventilation requirements

Roof pitch	Ventilation openings		
<10°	25,000 mm <sup>2</sup> /m provided at each of two opposing ends		
≥10° and <15°	25,000 mm <sup>2</sup> /m provided at the eaves and 5,000 mm <sup>2</sup> /m at high level		
≥15° and <75°	7,000 mm <sup>2</sup> /m provided at the eaves and 5,000 mm <sup>2</sup> /m at high level, plus an additional 18,000 mm <sup>2</sup> /m at the eaves if the roof has a cathedral ceiling		

#### ▼ Table Notes

(1) Ventilation openings are specified as a minimum free open area per metre length of the longest horizontal dimension of the roof.

(2) For the purposes of this table, high level openings are openings provided at the ridge or not more than 900 mm below the ridge or highest point of the roof space, measured vertically.

From the table for high pitch roof (> 15°) the minimum ventilation opening is 7000 mm<sup>2</sup>/m NCC accepts Over Facia Vent a useful method of ventilation with minimum free open area based on the above table. So, the G1200N (11,088 mm<sup>2</sup>/m) can be recommended for the high pitch roof compliance with the NCC F8D5.



#### 6. INSTALLATION PROCEDURE

- VENT Systems G1200N should be screw fixed (for metal fascia) or nail fixed (for timber fascia) to the top of the fascia board through the fixing holes provided along the full length of the eaves as shown.
- Ensure screws meet metal fascia manufactures warranty requirements. Armagalve (Zinc Coated) type screws are recommended for metal fascias.
- G1200N Over Fascia Vents is located above the fascia and under the sarking membrane and where applicable with an eaves flashing above the over fascia vent. The over fascia vents butt up to each other along the entire run of fascia.
- G1200N Over Fascia Vent may require some adjustment to fascia or roof heights depending on the type of over fascia vent selection, the type of fascia and/or the combination of VENT Systems products being installed.

#### **Bush Fire Prone Applications**

Where VENT Systems G1200N is used and embers could be expected to be drawn into a cavity through the opening, the G1200N Over Fascia Vent batten must be wrapped on the exterior face by a corrosion resistant, non-combustible Aluminum mesh with maximum aperture of <2mm, independently tested to meet the physical properties required by AS3959-2018 Amdt.1. Products are not supplied with BAL Mesh.

For application of BAL Mesh:

- Fix BAL mesh to top fascia across expanse of fascia, equivalent to length of Over Fascia Vent to be used.
- Over Fascia Vent is placed on top of BAL Mesh and fixed into fascia. •
- BAL Mesh pulled over the Over Fascia Vent and fixed to vent or through to fascia.



### 7. SUMMARY

In summary, this comprehensive report has provided a detailed account of the measurements taken on the Vent Systems' G1200N Over Facia Vent. These measurements were designed to determine its free open area (FOA) under two distinct scenarios: one with the inclusion of Aluminium BAL mesh and the other without.

The G1200N offers a versatile solution for ventilation needs, with a minimum FOA requirement set as per the NCC/F8D5 table (Ventilation of roof spaces). This product allows for a minimum FOA of 11,088 mm<sup>2</sup>, with a tolerance of  $\pm$  330, making it adaptable to various applications.

The presence of Aluminium BAL mesh around the facia vents was also factored into the analysis, with the resulting calculations indicating an FOA of 11,088 mm<sup>2</sup>, with a tolerance of  $\pm$  330 at the inlet.

These findings not only provide valuable insights for architects and builders but also underscore the importance of considering the specific requirements of each project for optimal ventilation and airflow. This detailed analysis reaffirms the commitment of Vent Systems to providing high-quality products that meet and exceed industry standards.

## 8. REFERENCES

- NCC Table F8D5: Roof Space Ventilation Requirements: <u>https://ncc.abcb.gov.au/editions/ncc-2022/adopted/volume-one/f-health-and-amenity/part-f8-</u> <u>condensation-management</u>
- Vent Systems G1200N Over Facia Vent Data Sheet: <u>https://www.vent.nz/products/roof-ventilation/over-fascia-vent-g1200n/</u>