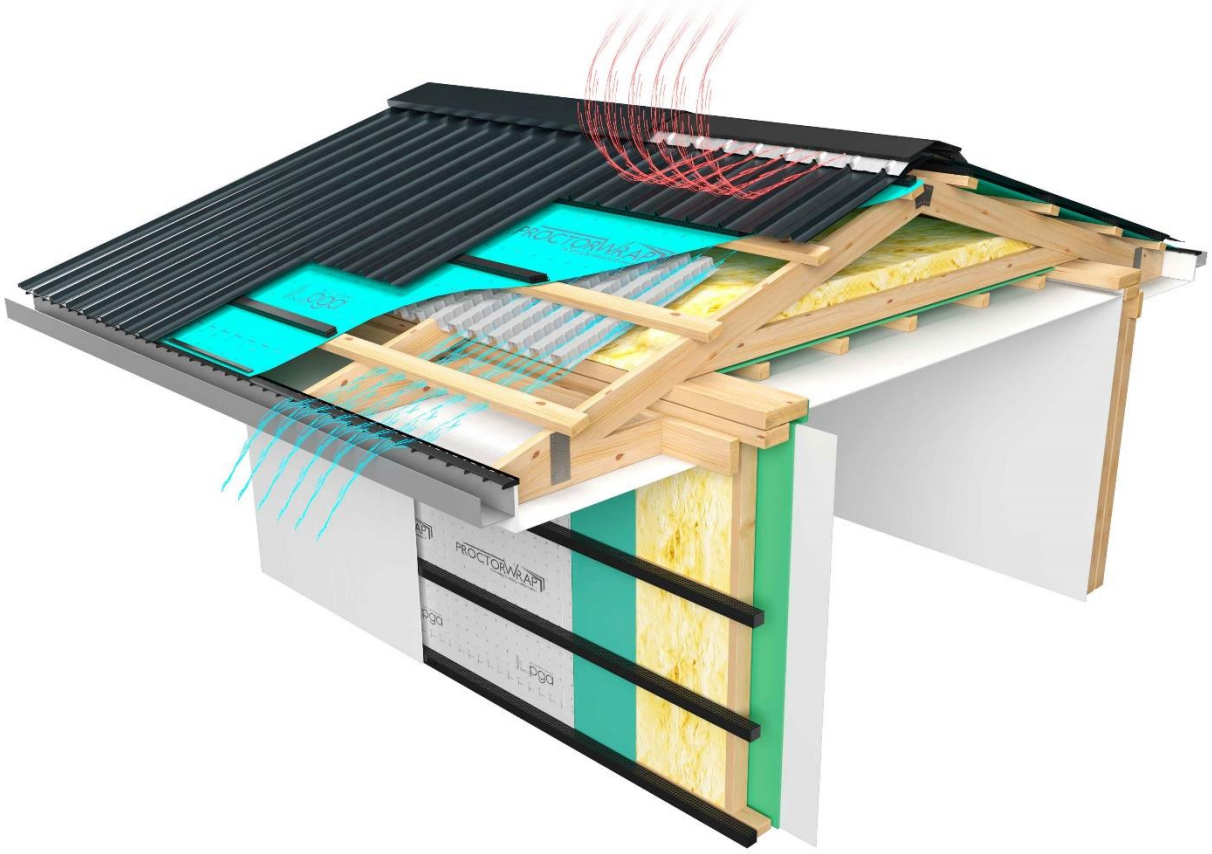
FREE OPEN AREA MEASUREMENT REPORT

VENT SYSTEMS' VB20 VENTILATION & DRAINAGE BATTEN



Report No.	Rev.	Date	Project	Client	Author	Signature
R2405	1	11.04.2024	-	Vent Systems	Shaun Derakhshan, PhD (MIEAust CPEng NER)	

Email: design@deratec.com.au Tel: 0421 439 912 www.deratec.com.au Deratec@Linkedin

CONTENTS:

1.	OVERVIEW	3
2.	VB20 BATTEN	3
3.	FREE OPEN AREA CALCULATION	5
4.	BAL COMPLIANCE	7
5.	INSTALLATION DETAILS	8
6.	SUMMARY	9
7.	REFERENCES	9

NOTES:

- This report should be considered with the specific details of the VB20 Batten. 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.

Email: design@deratec.com.au Tel: 0421 439 912 www.deratec.com.au Deratec@Linkedin

1. OVERVIEW

This extensive report is dedicated to presenting the measurements of the Vent Systems' VB20 Ventilation & Drainage Batten, with a primary emphasis on verifying its linear Free Open Area (FOA). The VB20 Batten holds significant importance in both wall and roof ventilation systems, and its ability to facilitate airflow efficiently is paramount to its effective deployment.

Widely employed across diverse architectural and construction projects, the VB20 Batten's performance is scrutinized here through measurements conducted under two distinct conditions: one involving the inclusion of BAL mesh and the other without. These measurements are conducted meticulously, employing vernier calipers with an impressive accuracy of 0.1mm. This meticulous precision ensures the reliability of recorded measurements, making them suitable for confident utilization in real-world applications, aiding in further analysis and decision-making processes.

2. VB20 BATTEN

The VENT VB20 is a Polypropylene Ventilation and Drainage Batten deigned to facilitate passive airflow and cavity drainage between the roofing underlay or membrane and the roof cladding. The VENT VB20 prevents the transfer of dew point from the underside of the roof cladding to the underside of the roofing underlay or membrane.

Features:

- ✓ Convenient peel-off adhesive backing eliminates the need for nails or glue.
- ✓ Insect proof - 4mm vents prevent ingress of nesting insects.
- ✓ Easy to install - manufactured in 1800mm lengths for easy handling.
- ✓ Strong and durable - when used as a vented batten on top of roofing battens, the VENT SYSTEMS VB20 has been upgraded in strength and tested to exceed foot traffic weight requirements on the roof above.
- ✓ Can be cut down to create 10 mm and 15 mm cavities if required.
- ✓ Also suitable for use in the wall cavity.
- ✓ Far exceeds Australian Standards, with a compression strength of 1,320Kpa.
- ✓ Insect proof – 4mm vents prevent ingress of nesting insects.
- ✓ Recommended for skillion or cathedral and trussed roofs.

Email: design@deratec.com.au Tel: 0421 439 912 www.deratec.com.au Deratec@Linkedin

- ✓ Commercial and residential application.
- ✓ Prevents Thermal Bridging.
- ✓ Ensures Ventilation & Drainage Cavities in walls and roofs.
- ✓ Prevents dew point transference.
- ✓ Create ventilation and drainage cavity behind light weight wall claddings.
- ✓ Convenient peel-off adhesive backing eliminates the need for nails or glue.
- ✓ Manufactured in 1800mm lengths for easy handling.

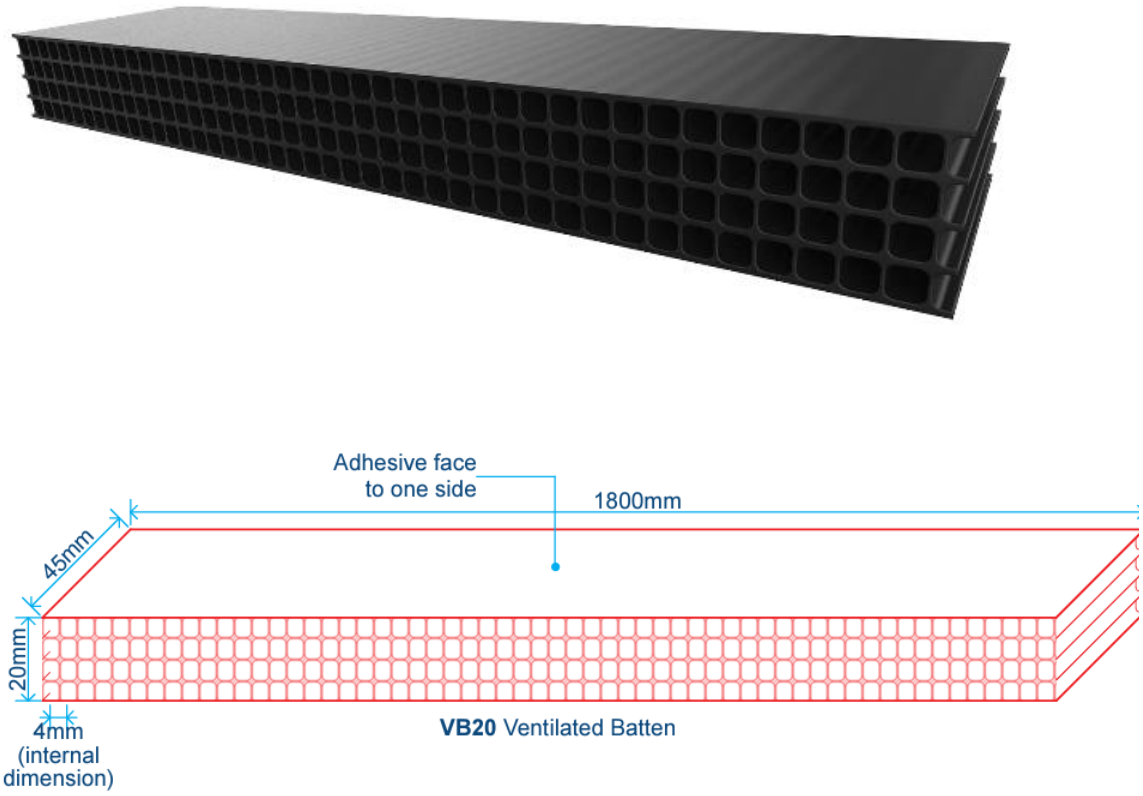


Figure 1. VENT Systems VB20 Batten nominal dimensions.

Email: design@deratec.com.au Tel: 0421 439 912 www.deratec.com.au Deratec@Linkedin

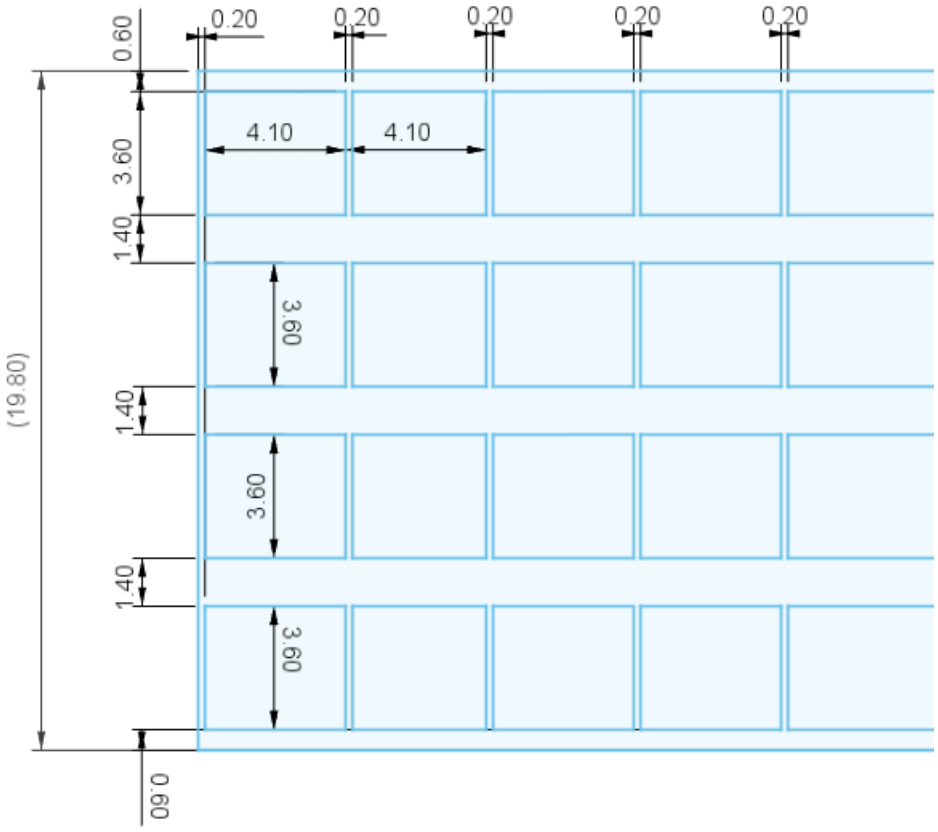
3. FREE OPEN AREA CALCULATION

To accurately determine the FOA of the 4, a physical sample measuring 300 mm in length was employed as the basis for measurement. A digital vernier calliper was utilised, with boasting an uncertainty level of 0.1mm, as showcased in the figure below:

Figure 3. VB20 Batten measurements

The internal size of rectangular channels has been measured and the average of them resulted in the table 1. It's important to note that the VB20 vent is designed to meet the industry standards. This commitment to providing optimal ventilation is a hallmark of the VB20 design and performance.

Email: design@deratec.com.au Tel: 0421 439 912 www.deratec.com.au Deratec@Linkedin



The following table shows the measurements' details:

Table 1. Measured Free Open Area (FOA) data for VB20 pre linear metre.

Total Free Open Area (mm²/m)	**14,170**
Uncertainty (mm²)	±750

VB20 Batten allows for a minimum free open area of 14,170 mm²/m with an acceptable tolerance of ±750 mm².

The free open area of the VB20 is not affected by the width of the product.

Email: design@deratec.com.au Tel: 0421 439 912 www.deratec.com.au Deratec@Linkedin

4. BAL COMPLIANCE

In the pursuit of a thorough analysis of VB20 the influence of the Aluminium BAL mesh, represented in the figure below, was factored into the measurements.

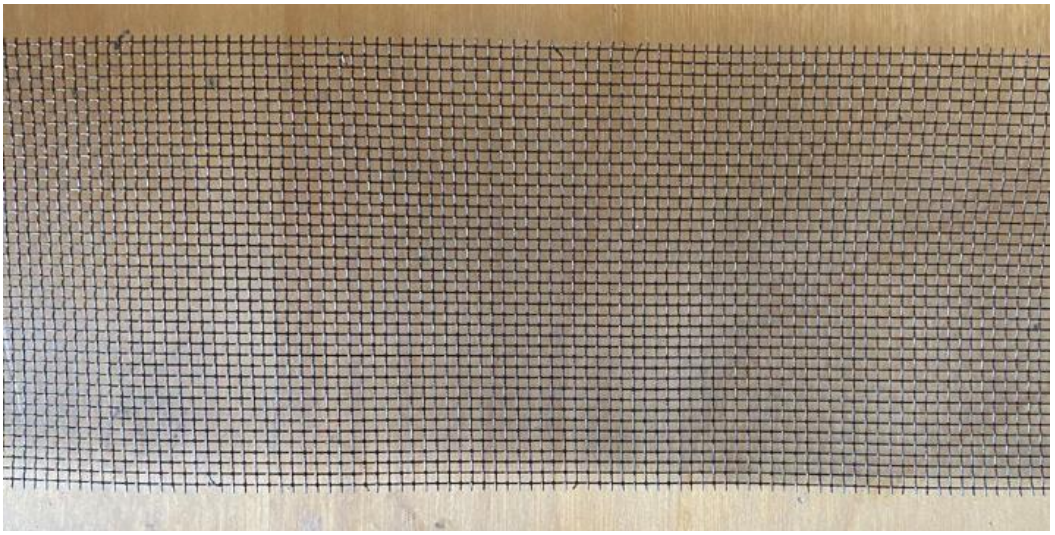


Figure 5. Aluminium BAL mesh to be measured.

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

The presence of Aluminium BAL mesh affects the FOA at the inlet only according to the following table.

Table 2. Measured Free Open Area (FOA) data for VB20 with Aluminium BAL mesh per linear metre.

Total Frea Open Area (mm^2/m)	**12,190**
Uncertainty (mm^2)	±750

The free open area of the VB20 is reduced by 12,190 mm^2/m when the BAL Mesh is directly applied to the product. To maintain the free open area of the VB20, the BAL mesh should be applied to create a cavity of no less than 20 mm^2.

Email: design@deratec.com.au Tel: 0421 439 912 www.deratec.com.au Deratec@Linkedin

5. INSTALLATION DETAILS

Installation in Roofs:

Reference should be made to the fastening specification of the cladding and ensure that the specified spacing, position and thread penetration through the supporting structure is suitable when using the ventilation & drainage battens. The fastener length should be increased to suit the drainage batten thickness (20mm).

Install the sarking in accordance with AS4200.2:2017, taping overlaps where required, such as on low pitched roofs. When sarking is installed over roof battens/purlins and/or VB20 battens the drape should be minimised to avoid ponding behind battens.

Prior to fixing the roof sheet, cut the VB20 with a knife, cutting tool or hand saw, to the required length and position along each roof batten adhering to the clean and dry sarking using the self-adhesive backing to hold the VB20 in position. Fix the roof sheet as soon as possible as the self-adhesive is only intended as a temporary fix for positioning the batten. If the VB20 is being left exposed for a long period or under windy conditions, then a mechanical fix or stronger double-sided tape may be needed.

Care must be taken when fixing the roof sheet not to compress the VB20. To avoid deformation of the roof sheet, compression of the drainage batten or damaging washers, ensure that torque is not set too high when fixing through the batten.

The VB20 is not a structural batten and is designed only to provide and maintain separation between the roof batten/purlin and the roof sheet or a ventilation pathway above roof battens in skillion/cathedral roofs (VB20). When using the VB20 in roof applications a hi-grip roof fastener must be used.

Installation in Walls:

Reference should be made to the fastening specification of the cladding and ensure that the specified spacing, position and thread penetration through the supporting structure is suitable when using the VB20. The fastener length should be increased to suit the drainage batten thickness (20mm). Prior to fixing the cladding, temporarily hold the batten in position with the self-adhesive. Fix the cladding as soon as possible as the self-adhesive is only intended as temporary for positioning the batten. Cladding must be fixed through the drainage batten into the structural frame or substrate as normal.

Email: design@deratec.com.au Tel: 0421 439 912 www.deratec.com.au Deratec@Linkedin

6. SUMMARY

In summary, this comprehensive report provides a detailed examination of the measurements conducted on Vent Systems' VB20 Batten. These measurements were undertaken to ascertain its Free Open Area (FOA) under two distinct scenarios: one with Aluminium BAL mesh included and one without.

The VB20 Batten serves as a versatile solution for wall and roof ventilation and drainage management. It ensures a minimum FOA of 14,170 mm² per linear meter, with a tolerance of ±750 mm², allowing for adaptability across various applications.

The free open area of the VB20 is reduced by 12,190 mm²/m when the BAL Mesh is directly applied to the product. To maintain the free open area of the VB20, the BAL mesh should be applied to create a cavity of no less than 20 mm².

These findings offer valuable insights for architects and builders, underscoring the importance of tailoring ventilation solutions to suit the specific needs of each project for optimal airflow. This thorough analysis reaffirms Vent Systems' commitment to delivering high-quality products that not only meet but exceed industry standards.

7. REFERENCES

- Vent Systems VB20 Ventilation & Drainage Batten Data Sheet.

Email: design@deratec.com.au Tel: 0421 439 912 www.deratec.com.au Deratec@Linkedin