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1.0 INTRODUCTION AND GENERAL NOTES

VENT-A-ROOF® is the latest technology in roof ventilation for LYSAGHT® steel roofs. VENT-A-ROOF® is a cost-effective, architecturally attractive solution for:
- Commercial buildings
- Light Industrial buildings
- Residential homes
- Sheds

VENT-A-ROOF® is a non-mechanical continuously operating, waterproof, cyclone-rated, metal roof ventilation system that provides a condensation management solution. Managing roof cavity condensation mitigates mould issues and contributes to improved health and safety in buildings across Australia.

BENEFITS OF VENT-A-ROOF®
- Improves roof ventilation with continuous airflow, reducing both roof space temperature and energy costs associated with cooling the building
- Full roof ventilation is made possible with both ridge and hip vents
- Mitigates condensation, humidity and mould
- Australian wind, bushfire and cyclone rated
- Cost-effective and integrated into the roof providing a low profile attractive alternative to ventilators
- Keep cooler in summer and remove condensation in winter
- Certified for use in BAL 12.5 – 40 regions to prevent ember ingress at ridge and hips
- Certified for use in cyclonic regions
- DTC solution for 2019 NCC condensation management and roof ventilation requirements

HOW THE SYSTEM WORKS

This deceptively simple passive system allows fresh outside air to be taken into the roof space either through soffit/eave vents or in through the system itself. This cooler air rises from these intake points and mixes within the ceiling or building space to create a natural flow of air that leaves the hot air escaping through the top of the ridge/skillion.

Simultaneously, external breezes provide a positive airflow which crosses over the ridge of the house creating negative pressure which pulls air out from the ridge vent. Effectively, two thermal effects create a continuous flow of air, allowing cool air into the roof/building space whilst extracting hot air.

SCOPE
This manual is a guide to the design and installation of the VENT-A-ROOF® system for steel roofing and walling manufactured by lysaght. We intend that it be used by all trades and professions involved with specifying and applying the VENT-A-ROOF® range of products.

We refer only to genuine steel roofing and walling manufactured by us and marketed under our brand names. Our recommendations should only be used for our products because they are based on comprehensive testing of our profiles, base metal thicknesses (BMT) and material finishes. More general design in installation with regard to steel cladding may be found in the LYSAGHT® Roofing and Walling Installation Manual. This manual covers a range of topics not covered in this manual.

WARRANTIES
For over 150 years we have consistently manufactured the highest quality building products. The LYSAGHT® brand is synonymous with Australian building. Our continuing confidence in our products is shown in the warranties we offer.

Our products are engineered to perform according to our specifications only if they are used in the appropriate conditions and installed to the recommendations in this manual and our other publications.

Naturally, the warranties require specifiers and installers to exercise due care in how the products are applied and installed and are subject to final use and installation. Also, owners need to maintain the finished work. The VENT-A-ROOF® system will not negatively impact warranties applicable to LYSAGHT® products.

We invite you to ask about the warranties applicable to your proposed purchase, at your supplier of LYSAGHT® products.

GENERAL NOTES TO READ BEFORE YOU USE THIS GUIDE
This Manual has been prepared for the VENT-A-ROOF® system for roofing applications using components manufactured or supplied by lysaght.

Whilst this manual primarily deals with VENT-A-ROOF® in roofing applications the principles apply equally to walling applications. For specific walling advise speak with your local lysaght branch. VENT-A-ROOF® louvres are not recommended for use at wall bases where they may be subjected to constant moisture.

This manual covers installation procedures for both new and retro fit applications in both non-cyclonic and cyclonic applications.

PROFESSIONAL ADVICE
All erection and connection details are to be made in accordance with the relevant standard connection details contained in this Manual. We recommend you get professional advice to ensure your particular needs are adequately met.

To ensure maximum lifespan of your building, consult your nearest lysaght branch for information regarding maintenance, handling, storage and any other technical assistance you may require.

FURTHER INFORMATION ON PRODUCTS AND SERVICES
www.lysaght.com
Your supplier of LYSAGHT® products
LYSAGHT® Information Service on 1800 641 417
2.0 DESIGN PRELIMINARIES

MATERIALS AND FINISHES

VENT-A-ROOF® components and LYSAGHT® cladding and flashings are manufactured from Australian made BlueScope steel.

MATERIAL SPECIFICATIONS

VENT-A-ROOF® steel vent components are manufactured from 0.4mm BMT aluminium/zinc/magnesium alloy coated steel.

LYSAGHT® steel cladding and flashings are manufactured from Australian made BlueScope steel.

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Table 1 provides a ready reckoner for a Deemed to Comply solution for both whirlybirds and VENT-A-ROOF® in both skillion and gable/hip roof configurations utilising eave vents as part of the ventilation solution.

<table>
<thead>
<tr>
<th>Roof pitch</th>
<th>Ceiling area (m²)</th>
<th>No. of 300mm diameter whirlybirds</th>
<th>No. of 400mm x 200mm eave vents</th>
<th>Linear metres of VENT-A-ROOF® required</th>
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</table>

Table 2 provides a similar a Deemed to Comply solution for both whirlybirds and VENT-A-ROOF® in both skillion and gable/hip roof configurations where eave vents are unable to form part of the ventilation solution.

<table>
<thead>
<tr>
<th>Roof pitch</th>
<th>Ceiling area (m²)</th>
<th>No. of 300mm diameter whirlybirds</th>
<th>Linear metres of VENT-A-ROOF® required (No Eave Vents)</th>
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<td>400</td>
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</table>
For residential buildings outside of the m² range in Tables 1 and 2 above the calculation example below maybe used.

**Calculation example for a “typical” residential building with bathrooms and kitchen exhaust vans venting into roof space.**

House ceiling m² = 250m²

Roof pitch = 22.5 degrees

Therefore,

\[ 0.250m^2 \text{ ridge ventilation requirement} / 0.07m^2 \text{ WB capacity} = 3.6 \text{ whirlybirds.} \]

\[ 0.833m^2 \text{ eaves ventilation requirement} / 0.08m^2 \text{ EV capacity} = 10.4 \text{ i.e. 11 eave vents} \]

VENT-A-ROOF® calculation – eave vents

\[ 0.250m^2 \text{ ridge/hip ventilation requirement} / 0.019008m^2 \text{ VAR capacity} = 13.15 \text{ meters of VENT-A-ROOF® ridge ventilation} \]

\[ 0.833m^2 \text{ eaves ventilation requirement} / 0.08m^2 \text{ EV capacity} = 10.4 \text{ i.e. 11 eave vents} \]

VENT-A-ROOF® calculation – no eave vents

\[ 0.833m^2 \text{ ridge/hip ventilation requirement} / 0.019008m^2 \text{ VAR capacity} = 43.82 \text{ meters of VENT-A-ROOF® ridge/hip ventilation} \]

**VENT-A-ROOF® AIRFLOW CAPACITIES**

Whilst outside NCC requirements, airflow data provides valuable information to determine airflow changeover for both residential and commercial/industrial applications.

VENT-A-ROOF® airflow capacities at various wind speeds and ambient v attic temperature variation are provided at Table 3.

### Table 3

Airflow Calculations

<table>
<thead>
<tr>
<th>Wind Pressure Pa</th>
<th>Wind speed km/h</th>
<th>Wind speed Knots</th>
<th>External air temp differential to attic space (degrees Celsius)</th>
<th>300mm whirlybird</th>
<th>Im VENT-A-ROOF® louvre skillion ridge (with 45-50mm throat dimension)</th>
<th>Im VENT-A-ROOF® louvre Gable/ Hip Ridge (2m of louvre) (with 45-50mm throat dimension)</th>
<th>Im VENT-A-ROOF® louvre gable/hip ridge (2m of louvre)</th>
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<td>0.035 0.758</td>
<td>3 3</td>
<td>1.5 1.5</td>
</tr>
<tr>
<td>12.5</td>
<td>12</td>
<td>8.1</td>
<td>6</td>
<td>0.060 0.432</td>
<td>0.02 0.144</td>
<td>0.040 0.288</td>
<td>3 3</td>
</tr>
<tr>
<td></td>
<td>12</td>
<td>15</td>
<td>0.060 0.871</td>
<td>0.02 0.29</td>
<td>0.040 0.58</td>
<td>3 3</td>
<td>1.5 1.5</td>
</tr>
<tr>
<td></td>
<td>18</td>
<td>18</td>
<td>0.061 1.304</td>
<td>0.02 0.441</td>
<td>0.041 0.882</td>
<td>3 3</td>
<td>1.5 1.5</td>
</tr>
<tr>
<td>14.2</td>
<td>16</td>
<td>8.6</td>
<td>6</td>
<td>0.063 0.456</td>
<td>0.021 0.152</td>
<td>0.042 0.304</td>
<td>3 3</td>
</tr>
<tr>
<td></td>
<td>12</td>
<td>16</td>
<td>0.065 0.935</td>
<td>0.022 0.312</td>
<td>0.043 0.623</td>
<td>3 3</td>
<td>1.5 1.5</td>
</tr>
</tbody>
</table>

- Airflows represented for 0 km/h (Knots) wind speed are entirely due to convection.
- Increasing wind speeds will cool a sunlit roof hence reductions in attic v ambient temperatures for higher wind speeds.
- Shaded area represents default Australian design pressure of 12.5 Pa.
AIRFLOW CAPACITY/AIR EXCHANGE CALCULATION EXAMPLE FOR A “TYPICAL” LIGHT INDUSTRIAL SHED

Shed Dimensions

<table>
<thead>
<tr>
<th>Description</th>
<th>Measurement</th>
</tr>
</thead>
<tbody>
<tr>
<td>Length</td>
<td>50m</td>
</tr>
<tr>
<td>Width</td>
<td>18m</td>
</tr>
<tr>
<td>Wall height at eave</td>
<td>3m</td>
</tr>
<tr>
<td>Roof pitch</td>
<td>5 degrees</td>
</tr>
<tr>
<td>Roof Apex height</td>
<td>3.790m</td>
</tr>
<tr>
<td>Wind speed</td>
<td>Default design pressure 12.5pa or 8.1knts</td>
</tr>
<tr>
<td>External v internal air temp</td>
<td>12 degrees – warm day</td>
</tr>
</tbody>
</table>

Calculation

Step 1 – Shed Air Volume

- Air volume of shed = (50m x 18m x 3m) + (50m x 9m x 0.790m) = 2700 + 355.5 = 3055.5m³

Step 2 – Air Extraction Rate

- From Table 3 we can see that the Airflow/Air Extraction Rate per metre of louvre at the ridge given a 12 degree external to internal temperature variation and 8.1knts of wind = 0.040m³/s

Step 3 – Air Volume Extracted per Hour

- 0.040m³/s per metre of louvre x 50m building length = 2m³/second
  x 60 seconds = 120m³/min
  x 60 minutes = 7200m³/hr

Step 4 – Air Exchange Rate

- Shed air volume = 3055.5m³
- Volume extracted per hour = 7200m³

Therefore:

3055.5m³ divided by 7200m³/hr airflow provides for complete shed air changeover every .424 hours or every 25 minutes from the VENT-A-ROOF® system alone.

In practice, additional air changeover will occur via doorways, windows, shed wall to roof junctions etc.
VENT-A-ROOF® BAL (BUSHFIRE ATTACK LEVEL) PERFORMANCE

All new residential construction in Australia must undergo a BAL (Bushfire Attack Level) assessment as part of the building application process. Properties are assessed against 6 Bushfire attack Levels as outlined in Table 4.

<table>
<thead>
<tr>
<th>BAL ATTACK LEVEL (BAL)</th>
<th>BAL ZONE DESCRIPTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>BAL Low</td>
<td>There is insufficient risk to warrant specific construction requirements</td>
</tr>
<tr>
<td>BAL – 12.5</td>
<td>Ember attack. (BAL 12.5 Construction Requirements) i.e. Non-combustible coverings roof/wall junction sealed. Openings fitted with non-combustible ember guards. Roof to be fully sarked</td>
</tr>
<tr>
<td>BAL – 19</td>
<td>Increasing levels of ember attack and burning debris ignited by windborne embers, together with increasing heat flux. (BAL 19 Construction Requirements) i.e. Non-combustible coverings roof/wall junction sealed. Openings fitted with non-combustible ember guards. Roof to be fully sarked</td>
</tr>
<tr>
<td>BAL – 29</td>
<td>Increasing levels of ember attack and burning debris ignited by windborne embers, together with increasing heat flux. (BAL 29 Construction Requirements) i.e. Non-combustible coverings roof/wall junction sealed. Openings fitted with non-combustible ember guards. Roof to be fully sarked</td>
</tr>
<tr>
<td>BAL – 40</td>
<td>Increasing levels of ember attack and burning debris ignited by windborne embers, together with increasing heat flux and with the increased likelihood of exposure to flames. (BAL 40 Construction Requirements) i.e. Non-combustible coverings roof/wall junction sealed. Openings fitted with non-combustible ember guards. Roof to be fully sarked and no roof mounted evaporative coolers</td>
</tr>
<tr>
<td>BAL – FZ</td>
<td>Direct exposure to flames from fire, in addition to heat flux and ember attack. (BAL FZ Construction Requirements) i.e. Roof with FRL of 30/30/30 or tested bushfire resistance to AS1530.8.2. Roof/wall junction sealed. Openings fitted with non-combustible ember guards. No roof mounted evaporative coolers</td>
</tr>
</tbody>
</table>

VENT-A-ROOF® has been independently assessed as suitable ridge and hip treatment to prevent ember ingress for BAL-12.5 – BAL – 40 zones.

LYSAGHT® steel cladding and ancillary products combustibility status are outlined in NCC compliance documents located at www.lysaght.com/resources/ncc-australia-compliance

VENT-A-ROOF® CYCLONIC PERFORMANCE

Air leakage testing conducted at Farabaugh Engineering and Testing, show that VENT-A-ROOF® assists pressure equalisation between internal and external pressures. Testing results as shown at Table 5, demonstrate that a greater volume of air “escapes” through the VENT-A-ROOF® system than what is let in, an approximate 8% difference. The results show that as the test pressure increases, the rate of air escaping through the VENT-A-ROOF® system increases.

NB Test results Infiltration = air exiting the roof cavity and Exfiltration = air entering the roof cavity.

(Nielson, 2019)

<table>
<thead>
<tr>
<th>Test Pressure (PsF)</th>
<th>Test Pressure (Pa)</th>
<th>Infiltration</th>
<th>Exfiltration</th>
<th>Ratio (%)</th>
<th>Difference (m³/s)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.57</td>
<td>75.17</td>
<td>44</td>
<td>0.020765688</td>
<td>37.5</td>
<td>0.017698029</td>
</tr>
<tr>
<td>6.24</td>
<td>298.77</td>
<td>86.1</td>
<td>0.040634675</td>
<td>74.5</td>
<td>0.035160085</td>
</tr>
</tbody>
</table>

Based on these results, it is determined that installation of the VENT-A-ROOF® system to ridgeline areas of metal clad roofing to residential and commercial properties, will reduce internal pressures and as such reduce structural loads to these structures during cyclonic and high wind events. (Nielson, 2019)

VENT-A-ROOF® has been independently assessed and certified as suitable for use in cyclonic regions when affixed in accordance with the VENT-A-ROOF® Design and Installation Guide for cyclonic regions.
3.0 INSTALLATION - NEW INSTALLATIONS

3.1 STEP 1 - ROOF SHEETING INSTALLATION

Install LYSAGHT CUSTOM ORB®, LYSAGHT TRIMDEK® or LYSAGHT KLIP-LOK 700® sheeting in accordance with the LYSAGHT® Roofing and Walling Installation Manual, available on the lysaght website.

Critical dimensions for roof ridge batten position and ridge throat dimensions are shown at Figure 3.1.1.

**Figure 3.1.1**

---

**Table 6**

LYSAGHT® roll top ridge

<table>
<thead>
<tr>
<th>State</th>
<th>Region</th>
<th>Apex ridge to toe of batten</th>
<th>Sheet to sheet</th>
<th>Ridge legs</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>15˚</td>
<td>22.5˚</td>
<td>25˚</td>
</tr>
<tr>
<td>QLD</td>
<td>SEQ &amp; Rockhampton</td>
<td>180</td>
<td>175</td>
<td>170</td>
</tr>
<tr>
<td></td>
<td>Mackay, Townsville, Cairns</td>
<td>205</td>
<td>195</td>
<td>190</td>
</tr>
<tr>
<td>NSW</td>
<td>Coffs Harbour</td>
<td>175</td>
<td>165</td>
<td>160</td>
</tr>
<tr>
<td></td>
<td>Cardiff</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Emu Plains</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Batemans Bay</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Canberra</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Tamworth</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Dubbo</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>VIC</td>
<td>Lyndhurst</td>
<td>175</td>
<td>170</td>
<td>165</td>
</tr>
<tr>
<td></td>
<td>Albury</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Geelong</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Campbellfield</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>TAS</td>
<td>Hobart</td>
<td>175</td>
<td>170</td>
<td>165</td>
</tr>
<tr>
<td></td>
<td>Launceston</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>SA</td>
<td>Mile End</td>
<td>165</td>
<td>155</td>
<td>150</td>
</tr>
<tr>
<td></td>
<td>Gilman</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>WA</td>
<td>Forrestfield</td>
<td>170</td>
<td>160</td>
<td>155</td>
</tr>
</tbody>
</table>
Table 7

LYSAGHT® folded ridge

<table>
<thead>
<tr>
<th>Dimensions (mm)</th>
<th>Batten</th>
<th>Sheet</th>
<th>Throat</th>
<th>Ridge</th>
</tr>
</thead>
<tbody>
<tr>
<td>Apex ridge to toe of batten</td>
<td>Sheet overhang top of batten</td>
<td>Sheet to sheet</td>
<td>Ridge barge legs</td>
<td>Feed width</td>
</tr>
<tr>
<td>Region</td>
<td>15˚</td>
<td>22.5˚</td>
<td>25˚</td>
<td>Toe</td>
</tr>
<tr>
<td>Non cyclonic</td>
<td>180</td>
<td>175</td>
<td>170</td>
<td>95</td>
</tr>
<tr>
<td>Cyclonic</td>
<td>205</td>
<td>200</td>
<td>195</td>
<td>95</td>
</tr>
</tbody>
</table>

Table 7a

LYSAGHT® folded ridge (Commercial applications)

<table>
<thead>
<tr>
<th>Dimensions (mm)</th>
<th>Batten</th>
<th>Sheet</th>
<th>Throat</th>
<th>Ridge</th>
</tr>
</thead>
<tbody>
<tr>
<td>Apex ridge to purlin edge</td>
<td>Sheet overhang top of Purlin</td>
<td>Sheet to sheet</td>
<td>Ridge barge legs</td>
<td>Feed width</td>
</tr>
<tr>
<td>Application</td>
<td>1˚</td>
<td>5˚</td>
<td>15˚</td>
<td>1˚</td>
</tr>
<tr>
<td>Commercial/Industrial</td>
<td>173</td>
<td>95</td>
<td>110</td>
<td>140-180</td>
</tr>
</tbody>
</table>
Table 8

<table>
<thead>
<tr>
<th>Region</th>
<th>Apex ridge to toe of batten</th>
<th>Sheet overhang top of batten</th>
<th>Sheet to sheet</th>
<th>Ridge barge legs</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>15°</td>
<td>22.5°</td>
<td>25°</td>
<td>15°</td>
</tr>
<tr>
<td>Non cyclonic</td>
<td>190</td>
<td>185</td>
<td>180</td>
<td>95</td>
</tr>
<tr>
<td>Cyclonic</td>
<td>240</td>
<td>235</td>
<td>230</td>
<td>95</td>
</tr>
</tbody>
</table>

It is important that a consistent line is maintained at the ridge line of sheeting as per the dimensions noted in Figure 3.1.1-3.1.4 and Tables 6-8 as appropriate. Do not screw fix the ridge line of roof sheets. Sheet pans should not be turned up.
3.2 STEP 2 - BEGIN VENT-A-ROOF® LOUVRE INSTALL
Looking at ridge or hip line, begin the installation of VENT-A-ROOF® louvres from left to right.

For hipped roofs where only ridge potions of the roof are to be vented, start installation of the VENT-A-ROOF® louvres at the crown point of the roof.

3.3 STEP 3 - SLIDE LOUVRE OVER SHEET
Slide VENT-A-ROOF® louvre over the end of metal sheet.

3.4 STEP 4 - FIX LOUVRE TO SHEET
At the left end of louvre, apply enough pressure that the metal sheeting embeds a minimum of 3mm into the foam. To hold louvre into place, install one screw (10-16 x 16mm Teks® screw minimum class 3 coating) through the top of louvre into the rib of sheeting.

Finish screw placement through the louvre. Screws are to be installed as per screw pattern shown at Table 4. Install full sealant bead to the end of louvre and foam.

3.5 STEP 5 - ADD ADDITIONAL LOUVRES
Slide next length of louvre at an angle overlapping and insert it into the crimped end of the installed louvre, making sure the sealant and foam make good contact to ensure a weather-tight seal.

While fitting the louvre against previous louvre, ensure that the foam is in place and against metal sheeting. Screw in place as done in Steps 3 - 5.

Continue along the ridge, repeating Steps 3 - 5.
3.6 STEP 6 - INSTALL RIDGE CAP

Install ridge cap in accordance to AS 1562.1 using screws recommended in the LYSAGHT® Roofing and Walling Installation Manual. Screws should penetrate ridge, VENT-A-ROOF® louvre, roof sheet and batten below providing fixing to both roof ridge and ridge cap.

No scribing is required with VENT-A-ROOF® louvre, due to the closed cell weather tight foam within the VENT-A-ROOF® louvre.

For applications where only the ridge portion of the roof is utilising VENT-A-ROOF® the VENT-A-ROOF® ridge will sit 25mm above the hips caps. This will allow the VENT-A-ROOF® roll top ridge to neatly marry to the hip roll top ridge as shown in Figure 3.6.1.

Please note that for South Australian applications utilising roll top ridge that some pressure is required to “spread” the roll top ridge to cover the VENT-A-ROOF® louvres and maintain ridge throat dimension.

3.7 HIP INSTALL

The same principles apply to installation of hips with critical dimensions being identical.

3.8 SCREW PATTERN

Cyclonic and Non Cyclonic

Table 9

<table>
<thead>
<tr>
<th>Sheet Type</th>
<th>LYSAGHT</th>
<th>Screw</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>CUSTOM ORB®</td>
<td>TRIMDEK®</td>
</tr>
<tr>
<td>Recommended spacing of VENT-A-ROOF® fixing screws</td>
<td>shown at Figure 3.8.1</td>
<td>Figure 3.8.2</td>
</tr>
<tr>
<td>Distance from front/bottom edge of VENT-A-ROOF® louvre</td>
<td>60mm</td>
<td></td>
</tr>
<tr>
<td>Distance from top edge of VENT-A-ROOF® louvre</td>
<td>25mm</td>
<td></td>
</tr>
<tr>
<td>Fixing spacing at VENT-A-ROOF® joints</td>
<td>Both sides of join</td>
<td></td>
</tr>
<tr>
<td>Spacing of ridge cap fixing screws</td>
<td>for cyclonic applications cyclonic zips should be used for ridge cap fixing screws</td>
<td></td>
</tr>
</tbody>
</table>

Figure 3.6.1

**Figure 3.8.1**

- First Rib
- Fixed Spacing
- 14 screws per louvre
- 140 screws per box of louvres

**Figure 3.8.2**

- 10 screws per louvre
- 100 screws per box of louvres

**Figure 3.8.3**

- 14 screws per louvre
- 140 screws per box of louvres
4.0 INSTALLATION - RETRO-FIT

The vast majority of Australia's existing residential and light commercial and industrial buildings do not comply with the current NCC specification for roof ventilation.

Installation of a VENT-A-ROOF® system to an existing building can provide immediate benefits to health and amenity of the building by improving condensation management and reducing thermal loads within the roof space and thus living space.

4.1 STEP 1 - DETERMINE REPLACEMENT RIDGE FLASHING DIMENSIONS

Remove a small number of screws from a portion of the exist ridge to allow measurement from the ridge screw line (and mid-line of existing batten) to the top of the existing sheets.

Compare the measured dimensions with those in Table 6 to determine if roll top ridge or a special folded ridge is required.

Measure and order ridge lengths and VENT-A-ROOF® louvres.

4.2 STEP 2 - REMOVE EXISTING RIDGE

Remove the portion of the existing ridge to be replaced by the VENT-A-ROOF® system to expose the ridge throat.

4.3 STEP 3 - MARK ROOF SHEETS TO BE CUT

From the calculations determined in Step 1 mark each end of the ridge to be cut. Using a chalk line ping a line across the ridge in preparation to cut the sheets back.

4.4 STEP 4 - CUT BACK THE SHEETS

Using a cold cut steel saw, excalibur shears or similar cut back the roof sheets and cut back any insulation or sarking to reveal throat gap.

4.5 STEP 5 – INSTALL VENT-A-ROOF® LOUVRES

Start laying VENT-A-ROOF® louvres, left to right, as per 3.2 through to 3.10 of new installation instructions following appropriate screw patterns.

4.6 STEP 6 – INSTALL NEW RIDGE FLASHINGS

Following guidelines from 3.10 cut and screw fix new ridge flashings to vented ridge.

4.7 STEP 7 – CLEAN UP

Clean all debris from roof paying particular attention to swarf from cutting of sheets and screw installation.

4.8 STEP 8 – INSTALL EAVE VENTS

Install 400mm x 200mm eave vents, if required, in accordance with manufacturer’s instructions.
**5.0 APPENDICES**

**FORM 15 – BAL-12.5 – 40**

---

**Form 15—Compliance Certificate for building Design or Specification**

**NOTE**
This is to be used for the purposes of section 10 of the Building Act 1975 and/or section 46 of the Building Regulation 2006.

RESTRICTION: A building certifier (class B) can only give a compliance certificate about whether building work complies with the BCA or a provision of the QDC. A building certifier (Class B) cannot give a certificate regarding QDC boundary clearance and site cover provisions.

1. **Property description**
   - Street address (include no., street, suburb / locality & postcode):
     - All Australia
   - Lot & plan details (attach list if necessary):
     - In which local government area is the land situated?

2. **Description of components certified**
   - Clearly describe the extent of work covered by this certificate, e.g. all structural aspects of the steel roof beams.

3. **Basis of certification**
   - Detail the basis for signing the certificate and the extent to which tests, specifications, rules, standards, codes of practice and other publications were relied upon.

   - AS3609 2009 Construction of buildings in bushfire prone areas.
   - ACT Fire Engineering Opinion
   - NCC2016 Volume 2 P2.3.4 and 3.7.4.0

4. **Reference documentation**
   - Clearly identify any relevant documentation, e.g. numbered structural engineering plans.

   - AS3609 2009 Construction of buildings in bushfire prone areas.
   - ACT Fire Engineering Opinion
   - NCC2016 Volume 2 P2.3.4 and 3.7.4.0

5. **Building certifier reference number**
   - Building certifier reference number

6. **Competent person details**
   - A competent person for building work, means a person who is assessed by the building certifier for the work as competent to practice in an aspect of the building and specification design, of the building work because of the individual’s skill, experience and qualifications in the aspect. The competent person must also be registered or licensed under a law applying in the State to practice the aspect.

   - Name (in full): William Mark Anderson
   - Contact person
   - Phone no. business hours: 0426801512
   - Mobile no.: 0426801512
   - Email address: William1512@sky.com
   - Postal address: 13 Toomaroo Street Warner

7. **Signature of competent person**
   - This certificate must be signed by the individual assessed by the building certifier as competent.

   - Signature: [Signature]
   - Date: 28/02/2019

---

*The Building Act 1975 is administered by the Department of Housing and Public Works*

---

[Contact details and building certifier reference number]
# Form 15—Compliance Certificate for building Design or Specification

**NOTE**

This is to be used for the purposes of section 19 of the Building Act 1975 and/or section 46 of the Building Regulation 2006.

**Restriction:** A building certifier (Class B) can only give a compliance certificate about whether building work complies with the BCA or a provision of the GDC. A building certifier (Class B) cannot give a certificate regarding QOC boundary clearance and site cover provisions.

1. **Property description**
   - This section need only be completed if details of street address and property description are applicable.
   - E.g. in the case of (at a particular) pool design/plan, manufacture and/or patio and carport systems this section may not be applicable.
   - The description must clearly identify all relevant aspects of the subject of the application.
   - The lot & plan details (e.g. DP or RP) are shown on the documents or a site notice.
   - If the plan is not registered by title, print in reverse on site plan details.

   **Street address (includes no., street, suburb/s, locality & postcode):**
   - [Details]
   - **Australia Wind Regions A 1 – 7, B, C & D**
   - **Postcode**
   - **Lot & plan details (attach list if necessary):**
   - **In which local government area is the land situated?**
   - [Details]

2. **Description of components certified**
   - Clearly describe the nature of work covered by this certificate, e.g. all structural components of the steel roof frame.
   - [Details]

3. **Deals of certification**
   - Detail the basis for giving the certificate and the extent to which facts, specifications, tests, standards, codes of practice and other publications, were relied upon.

4. **Reference documentation**
   - Clearly identify any relevant documentation, e.g. numbered structural engineering plans.
   - [Details]

5. **Building certifier reference number**
   - Building certifier reference number
   - [Details]

6. **Competent person details**
   - A competent person for building work means a person who is assessed by the building certifier for the work as competent to carry out an aspect of the building and specification design, of the building work because of the individual's skill, experience and qualifications in the respect.
   - The competent person must also be registered or licensed under a law applying in the State to practice the aspect.
   - If no relevant law requires the individual to be licensed or registered to be able to give the help, the relevant council assess the individual on having appropriate experience, qualifications or skills to be able to give the help.
   - If the chief executive issues any guidelines for assessing a competent person, the building certifier must use the guidelines when assessing the person.

   - **Name (in full):** Brendan Nielsen
   - **Company name (if applicable):**
   - **Contact person:** J.C. Engineers Pty. Ltd.
   - **Phone no.** [Details]
   - **Mobile no.** [Details]
   - **Fax no.** [Details]
   - **Email address:** brendan.nielsen@jceengineering.net
   - **Postal address:** Building 5 – 22 Magnolia Drive, BROOKVALE
   - **Postcode:** 4030
   - **License or registration number (if applicable):** RPEC. 18317

7. **Signature of competent person**
   - By the individual assessed by the building certifier as competent.

   - **Signature:** [Signature]
   - **Date:** 4/2/2019

---

*The Building Act 1975 is administered by the Department of Housing and Public Works.*
Dear Mr. Smith,

This is to acknowledge receipt of the letter of advice for the JCE A150 - LETTER OF ADVICE - VENT-A-ROOF® PRODUCT, dated 18th February 2020.

The results demonstrate a high degree of effectiveness in the installation of the VENT-A-ROOF® product in the roof assembly. The test results show a significant improvement in the ventilation performance of the roof assembly when compared to the control sample. The VENT-A-ROOF® product has been shown to significantly reduce the pressure differences across the roof assembly.

The following diagrams illustrate the pressure distribution across the roof assembly with and without the VENT-A-ROOF® product.

Figure 1: Demonstration of without and with VENT-A-ROOF® Product.

The use of the VENT-A-ROOF® product is recommended in the design and construction of new buildings to achieve optimal ventilation performance. The product is certified to meet the relevant standards and is backed by extensive testing to ensure its reliability.

The enclosed test report provides detailed results and recommendations for the installation of the VENT-A-ROOF® product. Please refer to the report for further information.

Thank you for your attention to this matter.

Best regards,

[Signature]

[Vent-A-Roof® Product Representative]
CONCLUSIONS AND RECOMMENDATIONS

It is determined that the Vent-A-Roof® product will not capture the structural safety and integrity of existing and commercial properties, where it affects the integrity areas of the residential or commercial roofing. The Vente-A-Roof® product affords a higher level of ventilation from the roof level or an allowance between ventilation levels, thereby, it can be utilized as the product performs better in higher air pressure and therefore rain systems studies.

The attached form 25 provides engineering certification for the structural capacity of the Vent-A-Roof® product.

We would like to thank you for your patience and wish you the best for your future endeavors. Please do not hesitate to contact us should you require assistance.

Sincerely,

[Signature]

[Name]

[Title]

[Date]

[Company]
Performance Test Summary

TAS-305A

Test Procedure for wind and Wet-Driver Main resistance and/or increased Windstream resistance of Soffit Ventilation Unit and Continuous or Intermittent ventilation system installed at the Ridge area on

EZ Vent-N-Closure

For

Vent-A-Roof

28 Norman Rd

Cockburn WA 6164

Australia

Daniel C. Farabaugh

Farabaugh Engineering and Testing Inc.

401 Wilde Drive, Mechanicsburg, PA 17055

(814) 234-4091 FAX (814) 234-4093 WWW.pteinc.com

Purpose

The purpose of this testing of Custom Metal Components, Inc.'s "EZ Vent-N-Closure" is in accordance with the following testing standard:

1) TAS-305A to establish the resistance to wind driven rain of a continuous or intermittent ridge area ventilation system when installed in a discontinuous roof system.

Test Summary

Custom Metal Components, Inc.'s EZ Vent-N-Closure metal roof ridge ventilation system for metal buildings has passed the wind-driven and water spray tests for wind-driven resistance testing.

<table>
<thead>
<tr>
<th>Intervals</th>
<th>Wind Speed (mph)</th>
<th>Water Spray Rate</th>
<th>Water Spray Time (min)</th>
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</thead>
<tbody>
<tr>
<td></td>
<td>(average)</td>
<td>(blank)</td>
<td>(blank)</td>
</tr>
<tr>
<td>1</td>
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<td>15</td>
</tr>
<tr>
<td>7</td>
<td>125</td>
<td>0.8</td>
<td>15</td>
</tr>
</tbody>
</table>

Total Volume of Water Collected: Less Than 1 ml. Willowski E15R Multi-Panel

VENT-A-ROOF
VENT-A-ROOF PERFORMANCE TEST REPORT ASTM E283 AIR LEAKAGE TEST ON METAL ROOF VENT FOR VENT-A-ROOF®

Objective:
The objective of this testing was to determine the performance of the test specimens under the conditions set forth in the referenced standards and as provided herein.

Test Assembly:
The test assembly consisted of a metal roof vent fabricated from 26-ga galv. metal with punched slotted holes as shown on the attached drawing.

Test Procedure:
The air leakage test was per ASTM E283-04 “Standard Test Method for Determining Rate of Air Leakage Through Interior Windows, Curtains, Walls, and Doors Under Specified Pressure Differences Across the Specimen” as well as provided herein. A variable speed blower provided a uniform flow for the specimen needs.

Test Data:
Test Date: 1/25/18
Specimen: 26-ga slotted metal roof vent
Vent Area: 127" (9.4 ft²) Length of Slotted Holes

ASTM E283-04 Air Test

Infiltration

<table>
<thead>
<tr>
<th>TEST PRESSURE (Pw)</th>
<th>TEST PRESSURE (Ps)</th>
<th>AIR LEAKAGE RATE (Cf/m²)</th>
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</thead>
<tbody>
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<td>75.17</td>
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<td>6.34</td>
<td>298.73</td>
<td>86.1</td>
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</table>

Exfiltration

<table>
<thead>
<tr>
<th>TEST PRESSURE (Pw)</th>
<th>TEST PRESSURE (Ps)</th>
<th>AIR LEAKAGE RATE (Cf/m²)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.57</td>
<td>75.17</td>
<td>31.5</td>
</tr>
<tr>
<td>6.34</td>
<td>298.73</td>
<td>74.5</td>
</tr>
</tbody>
</table>
PERFORMANCE TEST REPORT ASTM E283 AIR LEAKAGE TEST ON METAL ROOF VENT FOR VENT-A-ROOF®

(CONTINUED)

SLOTTED OPENING DIMENSIONS

0.55” (AVG) (13.97 MM)

0.08” (AVG) (2.03 MM)

INfiltrATION AIR FLOW DIRECTION

EXPILATION AIR FLOW DIRECTION

TEST SPECIMEN AREA
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