Understanding NCC 2022 Clause 10.8.3 – Ventilation of Roof Spaces

Clause 10.8.3 forms a critical part of the Condensation Management provisions introduced in NCC 2022 Volume Two, aimed at improving the durability, energy efficiency, and indoor air quality of residential buildings. As modern construction techniques create more airtight and thermally efficient homes, the risk of trapped moisture in the building envelope has increased — particularly in roof spaces, where heat, humidity, and poor air movement can lead to serious issues if not properly managed.

This guide aims to provide clear and practical information on how SolarArk Ventilation systems can be used to meet the ventilation requirements of NCC Clause 10.8.3

Contact Us 1300 670 966 info@solarark.com.au

Compliance with NCC 2022 – Condensation Management
NCC Volume One (Class 2 to 9 Buildings) – Part F8 and NCC Volume Two (Class 1 & 10 Buildings) – Part 10.8 mandate adequate ventilation to manage condensation risks.

SolarArk ventilators when correctly specified and installed provide performance solution that meets and exceeds the Deemed to Satisfy Solution for condensation management in Climate Zones 6, 7, and 8 thus ensuring compliance with provisions of NCC 2022 Volume 1: F8D5 in Climate Zones 6, 7, and 8 and ABCB Housing Provisions Standard 2022 10.8.3. By delivering sustained ventilation rates exceeding passive DTS methods, these ventilators facilitate continuous convective air exchange, reducing moisture retention, thermal stratification, and heat load accumulation in the roof cavity, leading to improved building energy efficiency and envelope integrity.

SolarArk suggests sizing ventilation requirement based on 10 – 20 Air changes per hour for flow rate. Along with the required high end and minimum eave ventilation equal to opening area of the roof ventilator or area equal to the required amount in the NCC Clause

SolarArk Solar Ventilators
Free Open Areas

SolarArk Model	**Ventilation Opening Area** (m2) , (mm2)
SAV-10B/SAV-10T	0.055m^2 or 55000mm^2
SAV-20/SAV-20T	0.20m^2 or 200,000mm^2
SAV-30/SAV-40T	0.1m^2 or100,000mm^2
SAV-60T	0.20m^2 or 200,000mm^2
SAV-120T	0.31m^2 or 310,000m^2

NCC 10.8.3 Roof Space Ventilation Requirements Table

Roof Pitch	Ventilation Openings
< 10°	25,000 mm2/m provided at each of two opposing ends
≥ 10° and < 15°	25,000 mm2/m provided at the eaves and 5,000 mm2/m at high level
≥ 15° and < 75°	7,000 mm2/m provided at the eaves and 5,000 mm2/m at high level, plus an additional 18,000 mm2/m at the eaves if the roof has a cathedral ceiling

Tables Notes:

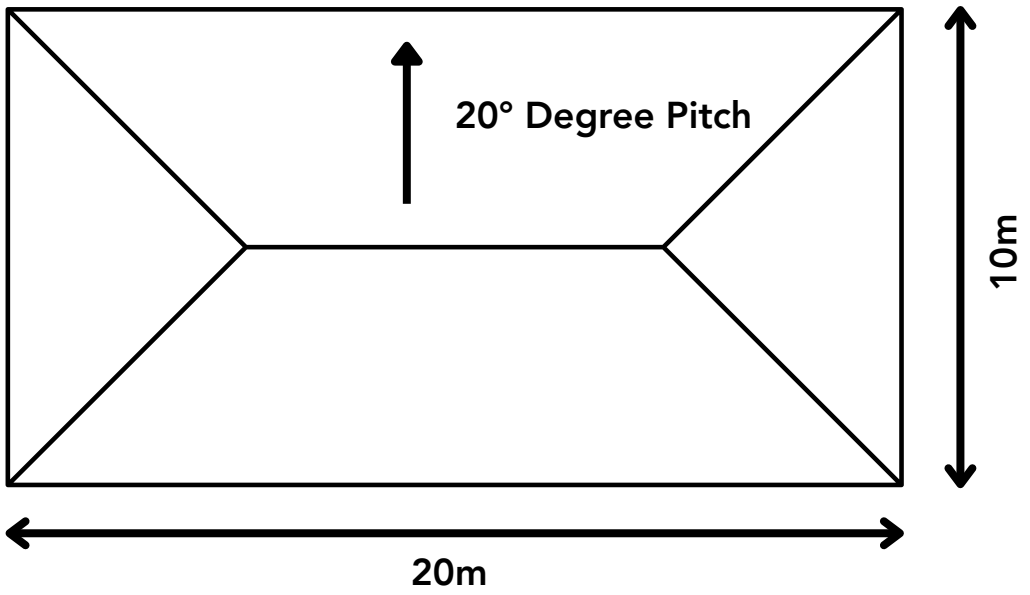
1. Ventilation openings are specified as a minimum free open area per metre length of the longest horizontal dimension of the roof.
2. For the purposes of this Table, high level openings are openings provided at the ridge or not more than 900 mm below the ridge or highest point of the roof space, measured vertically.

Understanding Free Open Area (FOA) in Eave Ventilation

The Free Open Area (FOA) of an eave vent refers to the actual area through which air can move—not just the physical size of the vent. For example, an eave vent that measures 400mm x 200mm has a gross area of 80,000mm², but due to the structure of the grill or mesh, the effective FOA may only be around 15,000 to 20,000mm².

With Solar Ark ventilation units, the FOA is measured at the bottom opening of the unit, which is completely unobstructed. This ensures that the full area of the intake is available for airflow, maximizing ventilation performance compared to traditional whirlybirds which only have a FOA of 55,000 - 60,000mm2 For example, our SAV-20 and SAV-20T has a throat opening of 500mm, which equates to a Free Open Area of 196,349mm2.

SolarArk Solution Example



NCC Compliance Calculation

High-End Ventilation Requirement:
20m Longest Horizontal Length – 20° Pitch – 5,000mm²/m Req.
20 × 5,000 = 100,000mm² Required
SAV-20/20T provides 200,000mm², meeting NCC compliance.

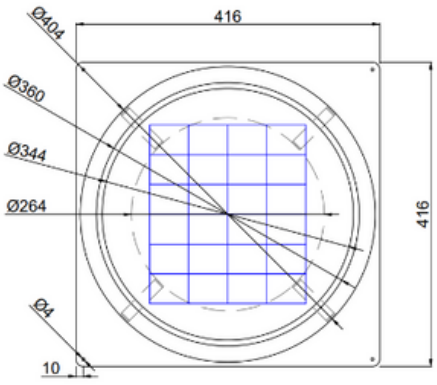
Eave Ventilation Requirement:
20m Longest Horizontal Length – 20° Pitch – 7,000mm²/m Req.
20 × 7,000 = 140,000mm² Required
7 Eave Vents wit a FOA of 20,000mm² each = 140,000mm², meeting compliance.

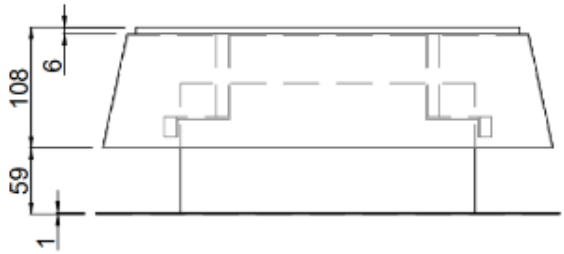
SolarArk Effective Ventilation Calculation – 2.4m Roof Height at Peak:
Required Flow Rate = Roof Area × ½ Roof Height × Air Exchange Target (10)
200 × 1.2 × 10 = 2,400m³/hr Required

SAV-20/20T operates at 2,712m³/hr with a 200,000mm² free vent area, meeting NCC high-end ventilation and a flow rate for an a effective ventilation solution. Add 7x Eave Vents installed evenly around perimeter for low-end compliance. The installation point should ideally be on the north-facing roof pitch. Alternatively, for east, south, or west-facing pitches, a SAV-20T unit can be used.

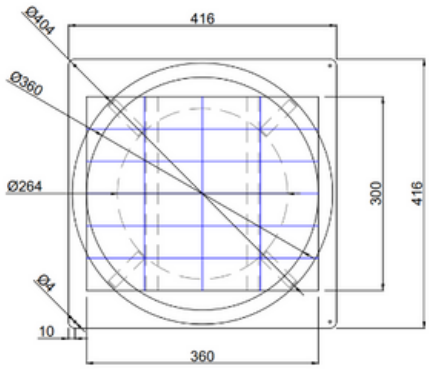
SAV-10 & SAV-10T
Solar Roof Ventilator

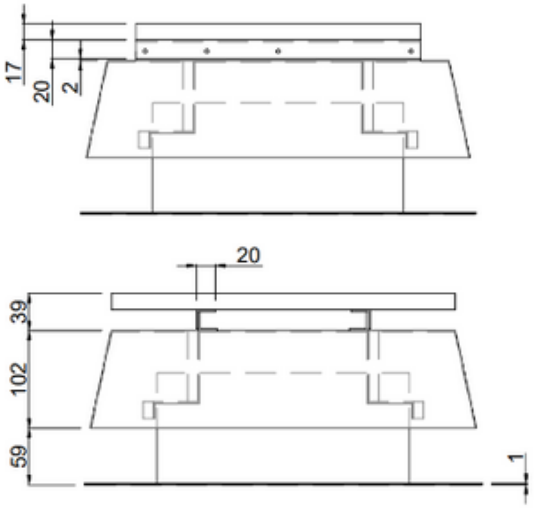
SAV-10B





SAV-10T



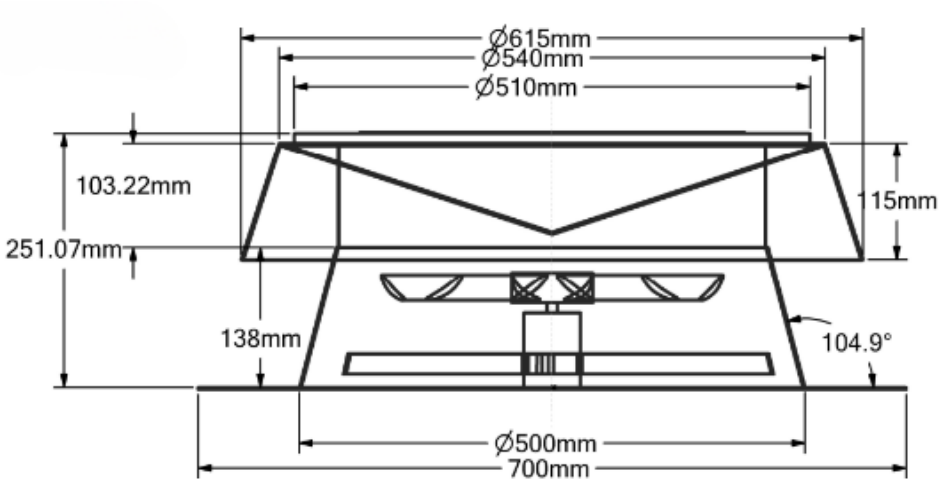


Application	Total Free Area	Flow Rate
High Level Ventilation Metal Sheet and Tiled	Ø264mm 54,739mm2	1,112m3/Hour

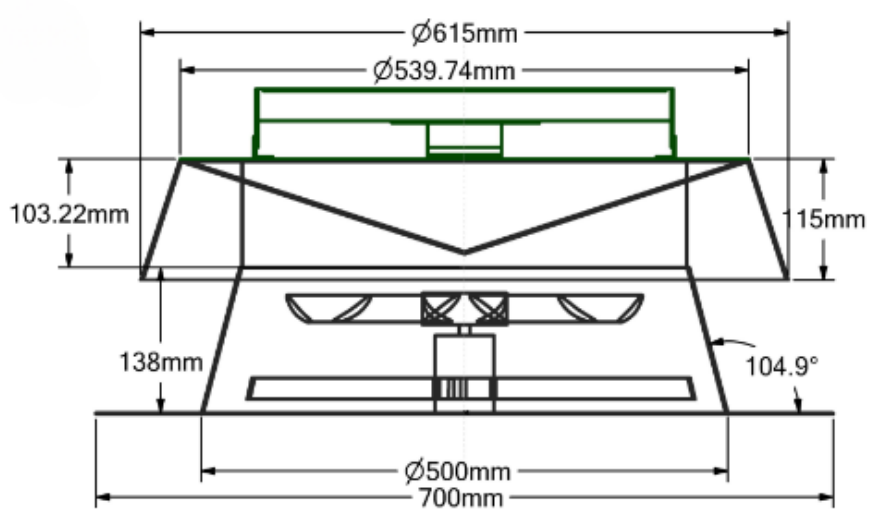
Roof Pitch	Roof Pitch
<10°	N/A
>10° - <15°	1 SAV-10/10T for Every 10.94m of Horizontal Roof Length
>15° - <75°	1 SAV-10/10T for Every 10.94m of Horizontal Roof Length
>15° - <75° Cathedral	1 SAV-10/10T for Every 10.94m of Horizontal Roof Length

SAV-20 & SAV-20T
Solar Roof Ventilator

SAV-20



SAV-20T



Application	Total Free Area	Flow Rate
High Level Ventilation Metal Sheet and Tiled	Ø500mm 196,349mm2	2,718m3/Hour

Roof Pitch	Roof Pitch
<10°	N/A
>10° - <15°	1 SAV-20/20T for Every 39m of Horizontal Roof Length
>15° - <75°	1 SAV-20/20T for Every 39m of Horizontal Roof Length
>15° - <75° Cathedral	1 SAV-20/20T for Every 39m of Horizontal Roof Length