



metrotile
LIGHTWEIGHT ROOFING

VENTILATION GUIDE

Roof Ventilation

Approved Document F2 (1995) Building Regulations and BS5250:2002 'Control of Practice for Condensation in Buildings' describes the causes, problems, and practical methods for avoiding condensation.

Key points of these requirements:

Condensation

The requirement of Approved Document F2 is that condensation is reduced in order that it will not cause damage to the structural or thermal properties of materials in a roof. Dampness is caused by: weather, interstitial condensation, surface condensation, and construction water (in wet constructions).

Roof Ventilation

Roof ventilation is necessary to avoid the problem of condensation. Adequate cross ventilation is required, with openings placed on the longer sides of a typical rectangular roof. Eaves to eaves roof ventilation relies on wind power. In most cases the roof ventilation system is improved by utilising the natural thermal up flow of air in a roof void. Ventilating the roof space from eaves to ridge, also avoids the problem of stagnant air pockets due to inadequate through-flows.

WARNING: high level roof ventilation should never be used on its own as the suction effect created could increase water vapour transfer into the roof void.

Roof ventilation should provide a continuous weatherproof path from roof void to the outside. Openings must not be blocked by dust or debris, and ingress of rain, snow, birds and large insects must be prevented. Mesh size of 4mm is recommended by BS5250, it is small enough to prevent entry by nesting insects or birds etc. Yet is large enough to prevent blockage, provide adequate air movement and avoid excessive airflow restraint.

Roof ventilation is recommended in all circumstances. NRFC bulletin 20 states: 'any water vapour transmission benefit of a vapour permeable roofing underlay cannot on its own eliminate roof space condensation. Any water vapour transmission benefit should be treated as fortuitous.' Where a vapour permeable underlay is used, it should therefore be in addition to, rather than in place of, ventilation of the roof void.

Ventilation openings can be sited at intervals, they should be of equivalent area to a continuous opening:

5mm air gap = 5,000mm² /m ventilation
10mm air gap = 10,000mm² /m ventilation
25mm air gap = 25,000mm²/m ventilation

Applications Of Building Regulations

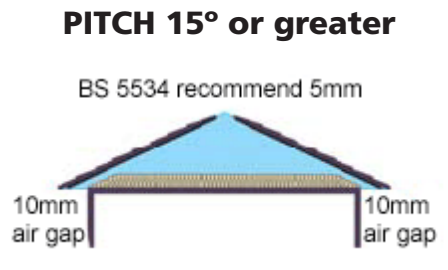
Pitched Roof - Ceiling and Insulation Horizontal

Open Roof Void

Building Regulations state: where the void is open, eaves to eaves air flow is effective, along the longer sides of the building. We would recommend the use of high level ventilation in addition to eaves ventilation in all cases – as it utilises the natural thermal uplift in a roof void. Eaves to eaves roof ventilation relies on the wind conditions which can result in poor through flow and stagnant air pockets.



USE: 25mm over fascia vent OR low level slate/tile vents as well as providing 5mm air gap either side of the ridge using vent trays/strips depending on tile profile.



USE 10mm over fascia vents OR low level slate/tile vents as well as providing 5mm air gap either side of the ridge using ridge vent trays/strip OR: high level tile vents

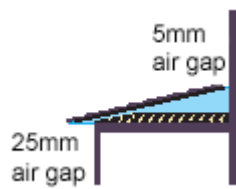
Steep or Wide Buildings

In addition to eaves vents, increased ventilation must be provided by high level openings. These are necessary to avoid stagnant air pockets due to inadequate through flow. In particular for roof slopes steeper than 35°, or for buildings more than 10 metres wide, high level roof ventilation is required. We would recommend providing 25mm ventilation at eaves level along with 5mm continuous ventilation either side of the ridge

Mono Pitch Roofs

Use ventilation at the eaves and at the abutment

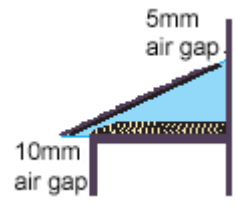
PITCH 15° or less



USE: 25mm over fascia vents OR: low level tile vents to provide equivalent 25mm air gap

As well as providing continuous ventilation at top of roof with either vent tray/strip or tile vents equivalent to 5mm.

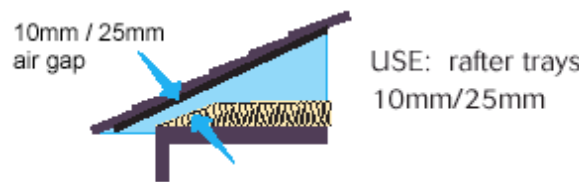
PITCH 15° or greater



USE: 10mm over fascia vents or tile vents to provide equivalent 10mm air gap as well as providing 5mm continuous ventilation at the top of the roof using vent tray/strip or equivalent tile vents

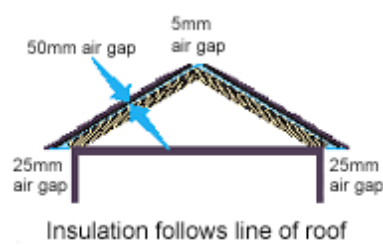
Air Flow

Where eaves ventilation is provided care should be taken to prevent insulation blocking off air flow to roof. The use of rafter trays should prevent such incidents.



Pitched Roof - Ceiling and Insulation Inclined

Where the insulation follows the line of the roof, an air gap of at least 50mm must be maintained between the underlay and insulation all the way along the inside of the roof in order to prevent air resistance in this area. Where joists run at right angles to the air flow, use counter battens.



Air Flow Between roofing underlay and insulation

To avoid stagnant air building up use 25mm over fascia vents or low level tile vents to provide similar 25mm ventilation as well as ridge vent tray/strip to provide continuous 5mm ventilation either side of the ridge alternatively use tile vents each side of the ridge to provide adequate ventilation.

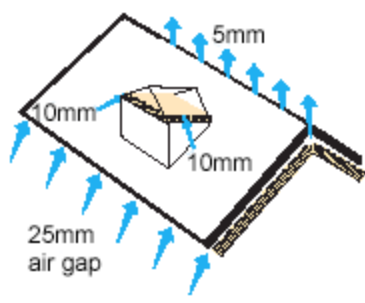
Ventilating Dormers

Pitched type dormer roofs should be ventilated from eaves to eaves.

Flat type dormer roofs should be ventilated from eaves to ridge of the main roof.

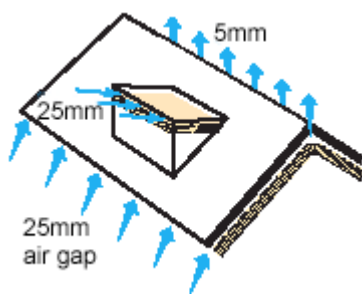
Pitched Type Dormer

USE: 10mm over fascia vents OR tile vents



Flat Type Dormer

USE: over fascia vents 25mm



Main Roof

USE: 25mm over fascia vents at eaves level as well as 5mm continuous ventilation either side of the ridge line using vent tray/strip or tile vents to provide equal ventilation.

These are guideline recommendations. It is the clients responsibility to ensure all designs meet and works are carried out in accordance with current regulations.

Metrotile (UK) Ltd
Unit 3
Sheldon Business Park
Sheldon Corner
Chippenham
Wiltshire
SN14 0RQ

Tel: +44 (0)1249 658514
Fax: +44 (0) 1249 658453
Email: sales@metrotile.co.uk
Web: www.metrotile.co.uk

