

# Home Energy Grants: Roof Insulation Technical Bulletin

## Ventilation

Series 2024-10-001 RI

# Installation Guidance for Attic Insulation

This technical bulletin outlines common reworks noted by SEAI during inspections of Roof Insulation installation works. The methods described below are intended as guidance. All measures must be installed as per the [Domestic Technical Standards and Specification \(DTSS\)](#) and in accordance with the [Contractors Code of Practice](#).

Please see the Contractors Support page for further information:

<https://www.seai.ie/grants/supports-for-contractors/>.

Please consult **Appendix 2 of the Quality Assurance and Disciplinary Procedures (QADP) document** before commencing any grant aided works on the Better Energy Homes (BEH) Programme as it contains a full list of checklists, used by SEAI inspectors, for each individual measure.

These checklists should be used for each measure as a form of mini audit on your own work to ensure that all installations do not contain any of the non-compliances listed, prior to completing and signing the Declaration of Works (DoW) form.

In this technical bulletin for Roof Insulation installation work, the following high occurring non-compliance will be highlighted with suggested corrective action.

## 1. VENTILATION

- a. Ventilation at Eaves Level for Ceiling Level Insulation
- b. Ventilation Tiles for Ceiling Level Insulation
- c. Ventilation for Rafter Level Insulation
- d. Mechanical Extract Ventilation (MEV)
- e. Ventilation for Spray Foam Insulation

## 1. Ventilation

This technical bulletin aims to provide an in-depth overview of the ventilation requirements for Roof Insulation grant aided works for the BEH Programme. SEAI BEH encourages all Roof Insulation Contractors to read this bulletin carefully and use it as a training resource for crews.

Adequate ventilation is important in an attic to help prevent damp or mould from occurring. Therefore, it is important to ensure adequate ventilation openings are installed and left unblocked after installation of insulation to allow air to pass through freely. Long term exposure to interstitial condensation within a roof space can lead to structural roof timbers rotting.

**a. Ventilation at Eaves Level for Ceiling Level Insulation**

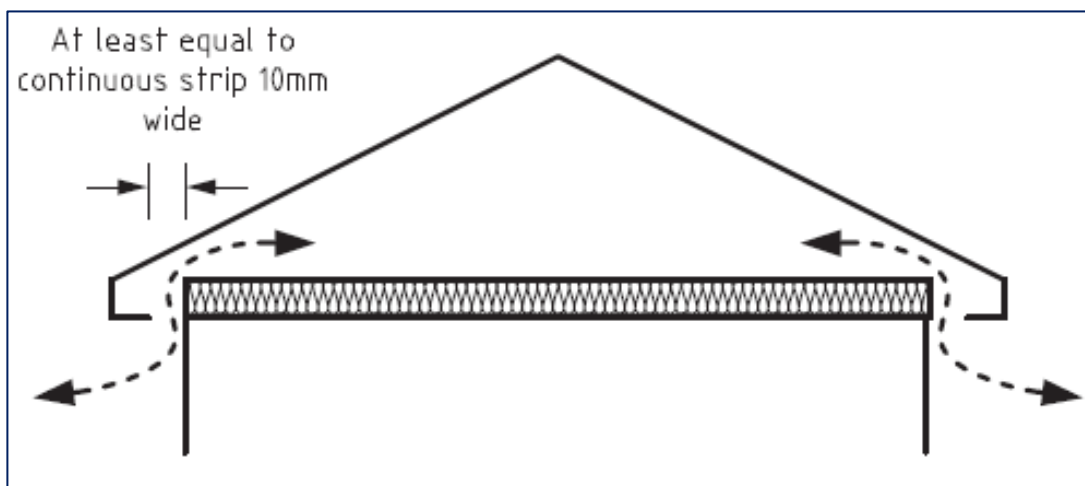


Figure 1: Typical Ventilation setup for Insulation Installed at Eaves Level

As shown in figure 1, insulation should be installed and not block the passage of air into (and out of) the roof. This is achieved by installing and maintaining ventilation at eaves level through proprietary soffit ventilators.

Figure 2 shows how this is achieved in greater detail. A continuous gap of at least 10mm or equivalent is required within the soffit or fascia below the guttering. Proprietary over fascia vent strips can also be used. The type of eaves ventilator shown here is a type that is folded to the correct pitch of the roof and placed between the rafters and then the insulation is laid into the eaves which is sufficient to hold the eaves ventilator in place.

If the insulation installed at ceiling level impedes on the eaves or the thickness of the insulation installed hinders the crossflow of air into the attic space, it may be more prudent to install ventilation tiles. All Contractors must assess this risk when installing insulation at ceiling level.

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<sup>1</sup> National Standards Authority of Ireland, “Code of Practice for the Energy Efficient Retrofit of Dwellings”, 2014&A1:2019: Page 65

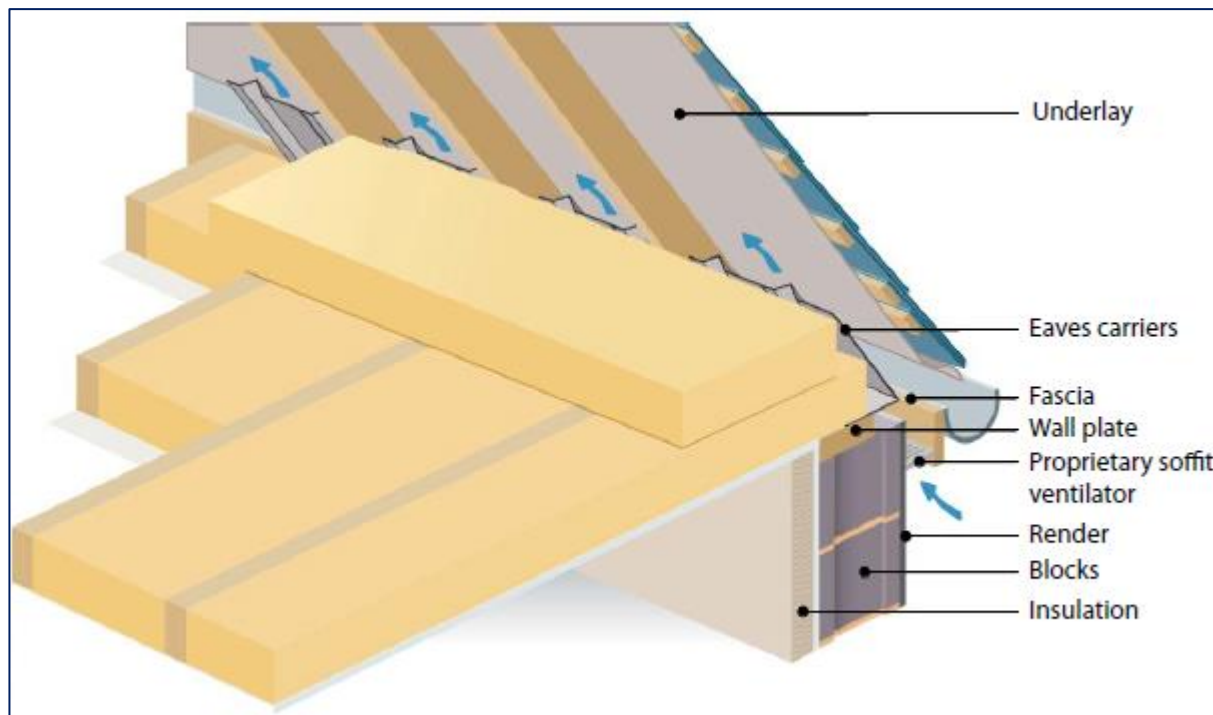


Figure 2: Cross-section through a Roof showing Ventilation at Eaves Level

### b. Ventilation Tiles for Ceiling Level Insulation

Where it is not possible to provide a gap at the soffit or fascia, the roof void can be ventilated by inserting ventilation tiles. These should be positioned at a low level on the roof slope (i.e. approximately 450mm up the slope above the top of the insulation, which is approximately 300mm vertically above the upper most surface of the ceiling insulation for a roof with a 45° pitch).

As previously mentioned, ventilation tiles may be a more practical solution where the insulation thickness or installation impedes eaves ventilation. This risk should be assessed on site by the Contractor to establish the most suitable form of ventilation.

Where there is a question over the adequacy of using eaves ventilation alone to provide proper cross-ventilation, a ventilation tile should be installed to ensure sufficient ventilation.

### c. Ventilation for Rafter Level Insulation

Insulation installed at rafter level is most common in cases where there is an existing room-in-roof or where the Homeowner is planning to install a room-in-roof in the future. In these scenarios,

<sup>2</sup> National Standards Authority of Ireland, "Code of Practice for the Energy Efficient Retrofit of Dwellings", 2014&A1:2019: Page 66

insulation must be placed between or below the rafters (or both) with a continuous ventilated void between the underside of the installed insulation and the underside of the roof felt. This continuous running void of ventilation should be connected to ventilation at eaves level on either side of the dwelling.

The insulation either completely follows the slope of the roof or the profile of the rooms. The insulation should be continuous and at no point prevent cross ventilation of the roof voids.

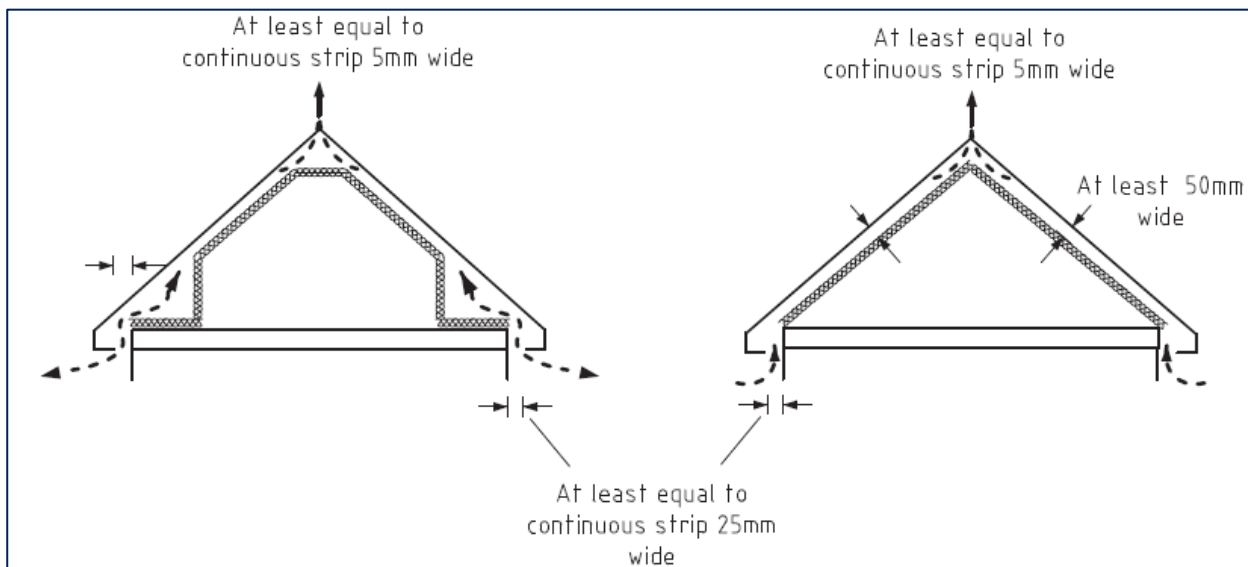


Figure 3: Typical Ventilation setup for Insulation Installed at Rafter Level

Insulation should be continuous around the thermal envelope. Where there are habitable rooms one side of a party wall only in the attic space, then the party wall should be insulated. Access hatches to the voids or attic spaces should be draughtproofed and insulated.

In terms of eaves ventilation, a gap of at least 25mm should be provided within the soffit or fascia below the guttering. To ensure ventilation is achieved throughout the whole roof structure, there should be a vented space of at least 50mm provided between each of the rafters between the top of the insulation and the underside of the roof covering.

Where eaves ventilation is not possible to install, ventilation tiles should be installed at both low levels on the roof slope and on both sides of the ridge.

#### d. Mechanical Extract Ventilation (MEV)

Where there is mechanical extract ventilation (MEV) ductwork entering the attic space, the ductwork outlet terminal must be connected to its own roof ventilation tile or connected to a soffit vent grill.

<sup>3</sup> National Standards Authority of Ireland, "Code of Practice for the Energy Efficient Retrofit of Dwellings", 2014&A1:2019: Page 69

This will ensure the MEV ductwork terminates to outside of the roof space thereby reducing the risk of condensation occurring within the roof space.

Figures 4 and 5 illustrate instances of where Inspectors have found MEV ductwork terminating within the roof space which results in non-compliant work and risk of increased condensation.

While Figure 6 and 7 illustrate a compliant roof soffit ventilation termination point for MEV ductwork and pitched roof ventilation tiles installed which MEV ductwork should be connected to for termination, respectively.



Figure 4: MEV Terminating within Attic Space



Figure 5: MEV Terminating within Attic Space



Figure 6: Compliant Roof Soffit Vents Installed for MEV Termination



Figure 7: MEV ventilation ducting correctly to ventilation roof tile

### e. Ventilation for Spray Foam Insulation

Adequate ventilation is a vital component for the installation of spray foam at rafter level within a roof space. With any SEAI grant aided job for roof insulation where spray foam is installed, only Irish Agrément Certified spray foam products (or equivalent) are allowable. Determination of equivalence for non-Irish Agrément Certified spray foam products must be established by the Contractor (cert holder) with the National Standards Authority of Ireland (NSAI).

These spray foam products must be installed in accordance with their associated Irish Agrément Certificate, which includes installation requirements for ventilation.

The particulars of ventilation requirements for spray foam products may vary depending on the product however, in general, it will require the installation of a breathable card fitted between the rafters which the foam will be sprayed onto. This card protects the underlay of the roof from spray foam being applied to it thus providing a continuous ventilation space between the installed spray foam and the sarking/breathable membrane of the roof.

For roofs where there are soffit vents present, the continuous ventilation space between the installed foam on the vent card and roofs underlay must be connected to this soffit ventilation. This is to ensure continuous cross-ventilation is achieved therefore reducing the risk of moisture or condensation settling in the rafters.

For full specification of the ventilation requirements for spray foam, please refer to the Irish Agrément Certificate spray foam product of which you are an approved user of.



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