

# THERMAL AND ACOUSTIC WOOL INSULATION

## INSTALL INSTRUCTIONS

The total R-Value of the building system depends on the building materials, design and installation and may be less than, greater than or equal to the R-Value of this product. GreenStuf® Wool Insulation products have an indefinite life and carry a 50 Year Product Durability Warranty.

The initial performance of this product may be reduced if it is stored for too long in its compressed packaging. Should this product be found to be compressed at installation, it will recover to its nominal thickness and R-Value between 72 hours and one month following installation, depending on the environmental conditions. GreenStuf Wool Insulation will not settle or reduce its performance over time and if installed in accordance with these manufacturer's instructions, it will meet the 50 year durability clause of the NZBC (B2.3.1(a)).

## TECHNICAL

**Safety Instructions:** GreenStuf Wool Insulation is completely safe and user-friendly and no protective clothing, specialist equipment or precautions are required to handle or install this product. GreenStuf Wool Insulation is non-irritant, non-toxic, and non-allergenic and therefore there will be no skin, throat or lung irritation on contact or following installation.

**CAUTION:** Electric cables and equipment partially or completely surrounded with any bulk thermal insulation may overheat and fail. This applies to wiring installed prior to 1989. Please follow these installation instructions.

**Installation Tools:** For retrofitting insulation, we recommend you have the following: step ladder, lamp and extension cord or torch, sharp scissors or wide blade snap/disposable knife, installing stick – such as a broom handle - used for pushing the insulation into corners and hard to reach places in the ceiling.

**Installation Instructions:** We recommend all thermal and acoustic insulation is installed in accordance with NZS 4246:2016 Energy Efficiency – Installing bulk thermal insulation in residential buildings. Copies of this Standard are available from Standards New Zealand.

Cutting to size – always cut GreenStuf Wool Insulation slightly oversized to ensure a tight friction fit. GreenStuf Wool Insulation rolls can easily be torn across the width by hand. GreenStuf Wool Insulation can be cut down the length of the pad or roll using an insulation saw, sharp scissors or by compressing the insulation under a timber off-cut and then cutting through with a sharp wide blade disposable knife. Heavier and higher density products can be cut using an 'insulation knife' or insulation saw.

Insulate all areas of the wall and ceiling leaving no gaps. Off-cuts can be used to fill small spaces. Even small gaps will significantly reduce the overall thermal efficiency of the construction system. Do not compress insulation unless this is a design specification as this will affect the thermal performance.

**Walls:** GreenStuf Wool Insulation Roll Form product thicknesses vary with R-Value. Before you begin ensure you have the correct insulation to fit inside the wall cavity. GreenStuf Wool Insulation should be friction fitted inside the timber framing ensuring no gaps. All of the wall space in exterior walls should be insulated (i.e. from the top to the bottom plates).

With a drained cavity wall construction and stud spacings greater than 450mm, NZBC E2/AS1, 9.1.8.5 Wall Framing behind Cavities, requires stud straps to prevent insulation bulging into the cavity. Straps must be run at 300mm centres over the wall underlay.

**Ceilings:** GreenStuf Wool Insulation should be friction fitted between the ceiling joists and over ceiling battens where possible, or laid at right angles over the ceiling joists ensuring no gaps. All of the ceiling area should be covered with insulation (i.e. to the top plates of the exterior walls) except around heating flues, all recessed lights and non-ducted extractor fans.

Start the installation at the furthermost point from the ceiling manhole. Use the 'installing stick' to push the insulation into harder to reach places.

Ensure a 25mm ventilation gap between the roofing underlay and the insulation is maintained at all times.

A minimum gap of 100mm must be left around recessed down lights and 200mm around unducted vents ceiling, do not cover ceiling vents - simply insulate around them. Ensure a 75mm gap is left around metal heating flues and 50mm for brick/concrete chimneys.

Where possible, insulation should be placed beneath electrical wiring to allow access for maintenance and to prevent possible over-heating.



**Double-layer ceiling installation:** For higher R-Value installations we recommend a 'double-layer' installation to reduce thermal bridging and heat-loss through the timber construction. When using double-layer insulation in trussed roof ceilings, it is important to install the top layer of insulation so that ceiling joists are completely covered. To ensure thermal bridging is reduced, ensure there are no gaps except around heating flues, chimneys, recessed light fittings and non-ducted extractor fans, as detailed previously.

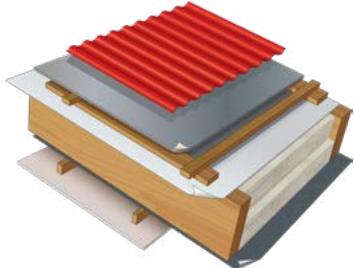
A raised heel is recommended to allow space for insulation over the top plate. Ensure there is a 25mm ventilation gap between the roofing underlay and the insulation.

When using double-layer insulation in purlin and skillion roofs, lay the second layer in the same direction as the first layer. Ensure that there is a 25mm ventilation gap between the roofing underlay and the insulation, or a ventilated cavity between the roofing and the roof underlay.

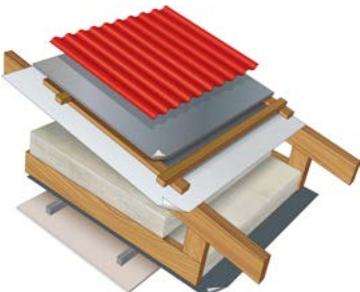
**This pack complies with AS/NZS 4859.1 at the nominal weight, net area and nominal thickness recorded on the bale label.**

## ILLUSTRATIONS OF CEILING WOOL INSULATION INSTALLATION

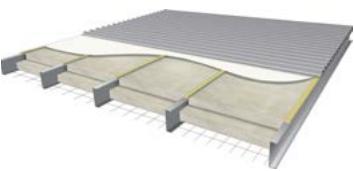
**Skillion Roof**



**Trussed Roof**



**Roof with Steel Purlins**



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