

# THERMAL CEILING INSULATION

**GreenStuf® Thermal Ceiling insulation is a 100% polyester thermal insulation manufactured to order and pre-nominated widths to suit most common ceiling constructions. It can also be used for walls, floors and mid-floors as thickness and R-values require.**

## APPLICATIONS

GreenStuf Thermal Ceiling Insulation is designed for the thermal (and acoustic) insulation of buildings in accordance with New Zealand Building Code (NZBC) H1 Energy Efficiency, and G6 Acoustic Design requirements.

GreenStuf Thermal Ceiling Insulation can be used as a roof blanket, in ceilings, under floors, internal and external walls and in mid-floor cavities. To ensure Building Code compliance, architects and building designers are advised to consult an engineer or the relevant NZ standards before specifying thermal and acoustic insulation products. For information and assistance please contact your GreenStuf account manager.

## TECHNICAL

**Durability:** GreenStuf has a 50 Year Durability Warranty.

**Hazardous Building Materials:** GreenStuf is non-hazardous.

**NZBC Compliance:** When installed in accordance with the manufacturer's instructions, GreenStuf insulation will satisfy the 50 year durability clause NZBC B2.3.1 (a). GreenStuf meets the relevant clauses of NZBC E3 Internal Moisture, F2 Hazardous Building Materials, and will contribute to meeting H1 Energy Efficiency.

**Fire Regulations:** GreenStuf insulation may not be suitable for all applications, as stipulated in the NZBC. Please consult a fire engineer when specifying GreenStuf insulation or contact your GreenStuf account manager for further information.

**Moisture:** GreenStuf is not affected by moisture. Exposure to an atmosphere of 50°C at 90% relative humidity for four days showed moisture absorption by weight of less than 0.03%.

**Acoustic Performance:** GreenStuf insulation will assist sound reduction by reducing the resonating noise inside the construction cavity. Actual performance will vary with different construction systems. For acoustic design assistance please contact your GreenStuf account manager.

### VOC Emission Safe:

VOC concentration: 0.01 mg/m<sup>3</sup> (7 days).  
GECA/GreenGuard Limit: 0.25 mg/m<sup>3</sup> (7 days).

*Cetec Pty Ltd (Report: RCV080408)*

### Fire ratings:

ISO 9705: 1993

Classification: Group 1-S

Smoke Production Rate: <5.0m<sup>2</sup>/s

As required by NZBC C/MM2

*FAR 4045-2 issued 8<sup>th</sup> October, 2013*

### AS1530.3

Ignitability Index (0-20) 0

Heat Evolved Index (0-10) 0

Spread of Flame Index (0-10) 0

Smoke Developed Index (0-10) 3

*APL Report 98055 (Test conducted on GreenStuf Thermal Insulation)*

### IEC 60695-11-5 (Downlight Fire Test Standard)

GreenStuf has been tested and assessed as complying with IEC 60695-11-5 Needle-flame Test.

*Certificates available on request*

**Non-Corrosive:** GreenStuf polyester is considered non-corrosive based on AS/NZS 4859.1 Standard for insulation.

**Non-Toxic, Non-Allergenic, Non-Irritant:** There are no known hazards with the use or handling of GreenStuf polyester.

**Vermin:** GreenStuf is naturally resistant to insect and vermin attack.

**Installation:** GreenStuf recommends that all thermal and acoustic insulation be installed in accordance with the manufacturer's instructions (included in each GreenStuf pack) and NZS 4246 Energy Efficiency - Installing Insulation in Residential Buildings.

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.

**Double Layer:** For higher R-value installations we recommend a 'double-layer' installation to reduce thermal bridging and heat-loss through the timber construction. Lay the first layer between the ceiling joists and over the ceiling battens, and the second layer at right angles to, and over the top leaving no gaps except around heating flues, chimneys, non-CA/IC rated recessed light fittings and non-ducted extractor fans as detailed in our installation instructions.

**MSDS:** Material Safety Data Sheets (MSDS) are available on request from your GreenStuf account manager or by visiting our website [greenstuf.co.nz](http://greenstuf.co.nz)

**Specification & Substitution:** GreenStuf specification documents are available through Masterspec or can be downloaded from our website [greenstuf.co.nz](http://greenstuf.co.nz). Substitution of any products in NZBC compliant systems should not be accepted and we recommend this be made clear in all specification and tender documents.



**ISO Standards:** GreenStuf is committed to Occupational Health and Safety, Quality and Environmental best practice through our ISO 45001, ISO 9001 and ISO 14001 certified management systems.

**Takeback Programme:** GreenStuf is recyclable. We will gladly recycle used polyester insulation site waste, including offcuts and packaging, to help keep it out of landfills. Please ensure used polyester insulation and offcuts are in a general state of cleanliness in line with standard site conditions. Excessive contamination, such as metal and cement, will not be accepted. Please contact your account manager to request a Material Diversion Certificate prior to dropping insulation off. For more information on recycling GreenStuf, contact us on 0800 428 839.

**Environmental:** GreenStuf Thermal Insulation is manufactured using 100% polyester fibre and contains a minimum of 82% previously recycled fibre content (from PET plastic).

All GreenStuf products are manufactured under Autex's Zero Waste Programme where all manufacturing waste is recycled back into the production process. GreenStuf products are Global GreenTag GreenRate Level A certified and can be used to contribute to Green Star and Homestar accreditation.

GreenStuf is also Declare certified to be Red List chemical free and can be used in Living Building Challenge projects. For more information, please contact your GreenStuf account manager, or visit our website [greenstuf.co.nz](http://greenstuf.co.nz)

## THERMAL CEILING INSULATION

PRODUCT	R-VALUE	THICKNESS	WIDTH	FORM	WEIGHT	DENSITY
Thermal Ceiling Insulation	R1.0	45mm	870mm	Roll	700gsm	15.6kg/m <sup>3</sup>
Thermal Ceiling Insulation	R1.5	100mm	580 - 870mm	Roll	750gsm	7.5kg/m <sup>3</sup>
Thermal Ceiling Insulation	R1.8	100mm	580 - 870mm	Roll	1025gsm	10.3kg/m <sup>3</sup>
Thermal Ceiling Insulation	R2.2	150mm	870mm	Roll	1100gsm	7.3kg/m <sup>3</sup>
Thermal Ceiling Insulation	R2.4	140mm	580 - 870mm	Roll	1400gsm	10kg/m <sup>3</sup>
Thermal Ceiling Insulation	R2.6	140mm	580 - 870mm	Roll	1650gsm	11.8kg/m <sup>3</sup>
Thermal Ceiling Insulation (Skillion Roof Blanket)	R2.9	115mm	870mm	Pads	2800gsm	24.3kg/m <sup>3</sup>
Thermal Ceiling Insulation	R2.9	140mm	580mm	Roll	1850gsm	13.2kg/m <sup>3</sup>
Thermal Ceiling Insulation	R2.9	185mm	580 - 870mm	Roll	1500gsm	8.1kg/m <sup>3</sup>
Thermal Ceiling Insulation (Skillion Roof Blanket)	R3.2	165mm	870mm	Pads	2050gsm	12.4kg/m <sup>3</sup>
Thermal Ceiling Insulation	R3.2	190mm	360 - 560mm	Roll	1800gsm	9.5kg/m <sup>3</sup>
Thermal Ceiling Insulation*	R3.4	140mm	870mm	Roll	2850gsm	20.4kg/m <sup>3</sup>
Thermal Ceiling Insulation (Skillion Roof Blanket)	R3.4	165mm	870mm	Roll	2300gsm	13.9kg/m <sup>3</sup>
Thermal Ceiling Insulation	R3.4	200mm	580 - 870mm	Roll	1850gsm	9.3kg/m <sup>3</sup>
Thermal Ceiling Insulation (Skillion Roof Blanket)	R3.6	140mm	870mm	Pads	3900gsm	27.9kg/m <sup>3</sup>
Thermal Ceiling Insulation (Skillion Roof Blanket)	R3.6	165mm	870mm	Pads	2800gsm	17kg/m <sup>3</sup>
Thermal Ceiling Insulation	R3.6	210mm	580 - 870mm	Roll	2050gsm	9.8kg/m <sup>3</sup>
Thermal Ceiling Insulation	R4.0	220mm	870mm	Roll	2300gsm	10.44g/m <sup>3</sup>
Thermal Ceiling Insulation	R4.1	210mm	870mm	Roll	2750gsm	13.1kg/m <sup>3</sup>

## DOUBLE LAYER SYSTEM

PRODUCT	R-VALUE	THICKNESS	WIDTH	FORM	WEIGHT	DENSITY
Thermal Ceiling Insulation (Double Layer)*	R6.8 (2x R3.4)	280mm (2x 140mm)	870mm	Roll	2850gsm per layer	20.4kg/m <sup>3</sup> per layer



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