

GreenStuf®

THERMAL SOFFIT LINER

GreenStuf® Thermal Soffit Liner has been engineered as a thermal and acoustic lining for masonry soffit type applications.

APPLICATIONS

GreenStuf Thermal Soffit Liner is designed to be installed to the underside of masonry and metal pan floors and ceilings to improve the thermal performance and energy efficiency of the building. GreenStuf Thermal Soffit Liner will help lower noise levels by controlling reverberation times in enclosed spaces and reduce noise spill to external areas.

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 or specification support, please contact your local GreenStuf account manager.

TECHNICAL

NZBC compliance: GreenStuf insulation, when installed in accordance with the manufacturer's instructions, will satisfy the 50-year durability clause NZBC B2.3.1 (a). GreenStuf meets the relevant clauses of NZBC C3.4(a) Prevention of Fire, F2 Hazardous Building Materials, and contributes to meeting H1 Energy Efficiency, and G6 Acoustic Design requirements.

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 local GreenStuf account manager for further information.

Fire ratings:

ISO 9705:1993

Classification: Group 1-S

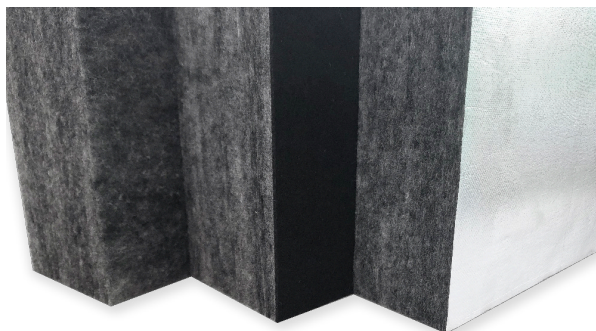
Smoke Production Rate: <5.0m2/s

As required by NZBC C/VM2

Greenstuf Thermal Soffit Liner - with no facing or black facing: FAR4045
(Assessment applicable to GreenStuf products with surface density up to 4800g/m2)

Greenstuf Thermal Soffit Liner - with foil facing: FC10711-01 / FI 5550

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



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

Durability: GreenStuf has a 50 year durability warranty.

Nominal thickness: The products nominal thickness is the off-line manufactured thickness. Packaging, storage, and handling may affect the “out of the pack” thickness. This is not considered a manufacturing fault. If the thickness is critical to an installation, please discuss your requirements with your GreenStuf account manager.

| R-Value | Thickness | Width | Form | Nominal GSM | Nominal Density (kg/m3) | Thermal Conductivity W/mK |
|-----------------------------|-----------|--------|------|-------------|-------------------------|---------------------------|
| R1.7 Thermal Soffit Liner 1 | 75mm | 1200mm | Slab | 1600 | 21.3 | 0.044 |
| R2.1 Thermal Soffit Liner 2 | 90mm | 1200mm | Slab | 2200 | 24.4 | 0.042 |
| R3.0 Thermal Soffit Liner 3 | 140mm | 1200mm | Slab | 2400 | 17.1 | 0.046 |

Acoustic performance: GreenStuf® Thermal Soffit Liner will assist in reducing and controlling reverberant noise in enclosed spaces such as carparks and basements or where it is left directly exposed in ceiling applications. GreenStuf Thermal Soffit Liner acoustic performance testing has been carried out in a laboratory environment in accordance with ISO 354.

| PRODUCT | THICKNESS | UNIVERSITY OF AUCKLAND TEST REPORT NUMBER | SOUND ABSORPTION — FREQUENCY (Hz) | | | | | | NRC |
|--|-----------|---|-----------------------------------|------|------|------|------|------|-------------|
| | | | 125 | 250 | 500 | 1000 | 2000 | 4000 | |
| R1.7 Thermal Soffit Liner | 75mm | T1816-4 | 0.40 | 0.85 | 1.00 | 1.00 | 0.95 | 1.00 | 0.95 |
| R1.7 Thermal Soffit Liner E-Foil Faced | 75mm | T1659-2 | 0.70 | 0.90 | 0.85 | 0.55 | 0.30 | 0.15 | 0.65 |
| R2.1 Thermal Soffit Liner | 90mm | T1816-3 | 0.50 | 0.90 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 |
| R2.1 Thermal Soffit Liner E-Foil Faced | 90mm | T1659-1 | 0.75 | 0.90 | 0.80 | 0.55 | 0.35 | 0.20 | 0.65 |
| R3.0 Thermal Soffit Liner | 140mm | T1816-1 | 0.85 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.05 |

Practical sound absorption coefficients calculated according to ISO 11654. NRC rating determined as the arithmetic average of the absorption coefficients measured by one-third octave bands centred on 250 Hz, 500 Hz, 1000 Hz, and 2000 Hz, and rounded to the nearest 0.05.

Thermal performance: GreenStuf Thermal Soffit Liner declared thermal performance ratings have been tested internally by GreenStuf Lab to ASTM C518-10 using the procedures of ASTM C653-97(2012) including the modifications specified in AS/NZS 4859.1.

GreenStuf's e-foil facing enhances product thermal performance by reflecting heat away from the surface*. The below table shows the Total Product R-Value for the Thermal Soffit Liner product range when installed on a horizontal ceiling.

| PRODUCT | FACING | INSULATION R-VALUE (R-Value m ² /Kw) | TOTAL PRODUCT R-VALUE (Insulation + Air Film) | | | |
|---------------------------|---------------------|---|---|--------|------------|--------|
| | | | ENCLOSED SPACE | | OPEN SPACE | |
| | | | Winter | Summer | Winter | Summer |
| R1.7 Thermal Soffit Liner | Unfaced Black faced | 1.70 | 1.86 | 1.81 | 1.74 | 1.74 |
| | E-foil faced | 1.70 | 2.50 | 1.93 | 1.74 | 1.74 |
| R2.1 Thermal Soffit Liner | Unfaced Black faced | 2.10 | 2.26 | 2.21 | 2.14 | 2.14 |
| | E-foil faced | 2.10 | 2.90 | 2.33 | 2.14 | 2.14 |
| R3.0 Thermal Soffit Liner | Unfaced Black faced | 3.00 | 3.16 | 3.11 | 3.04 | 3.04 |
| | E-foil faced | 3.00 | 3.80 | 3.23 | 3.04 | 3.04 |

* The increased thermal resistance depends on the orientation, the season, and whether the installation is indoor or outdoor. For more information on the thermal performance of foil-faced insulation, please contact your GreenStuf Account Manager. Alternatively, refer to Standard AS/NZS 4859.2 - Thermal Insulation: Design.

Product Format: GreenStuf Thermal Soffit Liner is supplied as standard 1200mm (+5/-0mm) x 2400mm (+10/0mm) sheets in Flint (light grey) colour or with a black or foil finish. Custom sizes and colours may be available on request but are subject to minimum order quantities.

GreenStuf Thermal Soffit Liner is non-woven, and some colour blending variation is typical batch to batch and throughout each production lot. This is an inherent feature of the product and is not considered a manufacturing fault.

Facings: GreenStuf Thermal Soffit Liner is supplied un-faced as standard. GreenStuf Thermal Soffit Liner can be laminated with either a black non-woven facing or a fire-compliant e-foil facing on request. Please discuss your specific needs with your GreenStuf account manager.

Manufacturing: GreenStuf Thermal Soffit Liner is manufactured to a strict set of tolerances and best practice manufacturing standards. GreenStuf Thermal Soffit Liner is an acoustic and thermal insulation designed to be installed in commercial buildings at height. GreenStuf Thermal Soffit Liner sheets may contain some fibre colour impurity and finish imperfections, including creases in laminated facings. These are a result of the manufacturing process and are not considered manufacturing faults. If you require a perfect finished surface, please consult with your GreenStuf account manager.

Maximum service temperature: GreenStuf Thermal Soffit Liner - can be used in environments with temperatures not exceeding the following:

Greenstuf Thermal Soffit Liner with no facing: 160°C
Greenstuf Thermal Soffit Liner with black or e-foil facing: 90°C

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 and does not contain chemical deterrents. Birds and vermin will live and nest in all bulk-fibre insulation materials if allowed access. In high-risk areas, GreenStuf recommends ensuring that the building perimeter is vermin proofed.

Non-corrosive: GreenStuf polyester is considered non-corrosive based on AS/NZS 4859 standard for insulation.

VOC Emissions: GreenStuf has been tested for chemical emissions in accordance with ASTM D5116 and is considered as a low VOC product.

VOC concentration: 0.01 mg/m³ (7 days).
GECA/GreenGuard Limit: 0.25 mg/m³ (7 days)

Water vapour sorption: ASTM C1104 / C1104M-13a
Test conditions: 49°C, 95%RH. Water vapour absorbed and adsorped after 4 days: 1.1% by weight

Microbial resistance: ASTM G21-15. Growth Rating: 0 (No growth). GreenStuf insulation does not promote the growth of moulds and mildew.

MSDS: Material Safety Data Sheets (MSDS) are available on request from your GreenStuf account manager or can be downloaded from our website: www.greenstuf.co.nz

Specification and substitution: GreenStuf specification documents can be downloaded from our website www.greenstuf.co.nz

Substitution of any products should not be accepted, and we recommend this be made clear in all specification and tender documents.

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 4246:2016 energy efficiency – installing bulk thermal insulation in residential buildings.

GreenStuf Thermal Soffit Liner is generally fixed with insulation type fasteners. Fixings should be set out at no more than 600mm centres and a maximum of 200mm in from the edge of each sheet. Refer to the GreenStuf Thermal Soffit Liner Installation Instructions for further information.

ISO Certifications: GreenStuf is committed to quality and environmental best practice through our ISO 9001 & ISO 14001 certified Quality and Environmental Management Systems.

Take back programme: GreenStuf® is recyclable. GreenStuf will gladly recycle used, uncontaminated GreenStuf insulation to help keep it out of landfills. For more information on recycling GreenStuf contact GreenStuf on freephone 0800 428 839.

Packaging recycling: GreenStuf packaging is recyclable LDPE 4. Please refer to your local recycling centres for drop-off and collection services.

Environmental: All GreenStuf products are manufactured using 100% polyester fibre and contain a minimum of 50% previously recycled fibre (from PET plastic). GreenStuf products are manufactured under GreenStuf'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 www.greenstuf.co.nz.



AN ISO 9001 AND ISO 14001 CERTIFIED COMPANY

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