

# CAR PARK AND ACOUSTIC SOFFIT LINER (ASL)

**GreenStuf<sup>®</sup> Car Park and Acoustic Soffit Liner has been engineered as a thermal and acoustic lining for masonry soffit type applications.**

## APPLICATIONS

GreenStuf Car Park and Acoustic 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 Car Park and Acoustic 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: <5.0m<sup>2</sup>/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/m<sup>2</sup>)*

*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.

**Acoustic performance:** GreenStuf Car Park and Acoustic 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	R-VALUE	THICKNESS	SIZE*	TYPE	WEIGHT	DENSITY
Car Park and Acoustic Soffit Liner (ASL Unlaminated)	R1.7	75mm	1.2 x 2.4m	Pads	1600gsm	21.3kg/m <sup>3</sup>
Car Park and Acoustic Soffit Liner (ASL Foil Finish)	R1.7	75mm	1.2 x 2.4m	Pads	1700gsm	22.7kg/m <sup>3</sup>
Car Park and Acoustic Soffit Liner (ASL Black Finish)	R1.7	75mm	1.2 x 2.4m	Pads	1800gsm	24kg/m <sup>3</sup>
Car Park and Acoustic Soffit Liner (ASL Unlaminated)	R2.1	90mm	1.2 x 2.4m	Pads	2200gsm	24.4kg/m <sup>3</sup>
Car Park and Acoustic Soffit Liner (ASL Foil Finish)	R2.1	90mm	1.2 x 2.4m	Pads	2300gsm	25.6kg/m <sup>3</sup>
Car Park and Acoustic Soffit Liner (ASL Black Finish)	R2.1	90mm	1.2 x 2.4m	Pads	2400gsm	26.7kg/m <sup>3</sup>
Car Park and Acoustic Soffit Liner (ASL Unlaminated)	R2.5	100mm	1.2 x 2.4m	Pads	3200gsm	32kg/m <sup>3</sup>
Car Park and Acoustic Soffit Liner (ASL Foil Finish)	R2.5	100mm	1.2 x 2.4m	Pads	3300gsm	33kg/m <sup>3</sup>
Car Park and Acoustic Soffit Liner (ASL Black Finish)	R2.5	100mm	1.2 x 2.4m	Pads	3400gsm	34kg/m <sup>3</sup>
Car Park and Acoustic Soffit Liner (ASL Unlaminated)	R3.0	140mm	1.2 x 2.4m	Pads	2400gsm	17.1kg/m <sup>3</sup>
Car Park and Acoustic Soffit Liner (ASL Black Finish)	R3.0	140mm	1.2 x 2.4m	Pads	2500gsm	18.2kg/m <sup>3</sup>

\*Custom Slab sizes available on request.



**Thermal performance:** GreenStuf Car Park and Acoustic 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 Format:** GreenStuf Car Park and Acoustic 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 Car Park and Acoustic 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 Car Park and Acoustic 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 Car Park and Acoustic Soffit Liner is manufactured to a strict set of tolerances and best practice manufacturing standards. GreenStuf Car Park and Acoustic Soffit Liner is an acoustic and thermal insulation designed to be installed in commercial buildings at height. GreenStuf Car Park and Acoustic 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 Car Park and Acoustic Soffit Liner - can be used in environments with temperatures not exceeding the following:

Greenstuf Car Park and Acoustic Soffit Liner with no facing: 160°C  
Greenstuf Car Park and Acoustic 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.

**Vermis:** 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/m<sup>3</sup> (7 days).  
GECA/GreenGuard Limit: 0.25 mg/m<sup>3</sup> (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:** STM 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 [greenstuf.co.nz](http://greenstuf.co.nz)

**Specification and substitution:** GreenStuf specification documents can be downloaded from our website [greenstuf.co.nz](http://greenstuf.co.nz)

NAME	THICKNESS	SOUND ABSORPTION — FREQUENCY						NRC
		125Hz	250Hz	500Hz	1000Hz	2000Hz	4000Hz	
R1.7 Car Park and Acoustic Soffit Liner	75mm	0.13	0.29	0.48	0.62	0.69	0.65	0.95
R1.7 Car Park and Acoustic Soffit Liner E-Foil Faced	75mm	0.15	0.30	0.50	0.65	0.75	0.75	0.65
R2.1 Car Park and Acoustic Soffit Liner	90mm	0.10	0.38	0.64	0.83	0.88	0.84	1.0
R2.1 Car Park and Acoustic Soffit Liner E-Foil Faced	90mm	0.15	0.42	0.73	0.92	0.96	0.90	0.65
R2.5 Car Park and Acoustic Soffit Liner	100mm	0.10	0.38	0.64	0.83	0.88	0.84	1.0
R2.5 Car Park and Acoustic Soffit Liner E-Foil Faced	100mm	0.15	0.42	0.73	0.92	0.96	0.90	0.65
R3.0 Car Park and Acoustic Soffit Liner	140mm	0.29	0.54	0.78	0.82	0.80	0.76	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.

PRODUCT	FACING	INSULATION R-VALUE	TOTAL PRODUCT R-VALUE (INSULATION + AIR FILM)			
			ENCLOSED SPACE		OPEN SPACE	
			WINTER	SUMMER	WINTER	SUMMER
R1.7 Car Park and Acoustic 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 Car Park and Acoustic 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
R2.5 Car Park and Acoustic Soffit Liner	Unfaced Black faced	2.50	2.66	2.61	2.54	2.54
	E-foil faced	2.50	3.30	2.73	2.54	2.54
R3.0 Car Park and Acoustic Soffit Liner	Unfaced Black faced	3.00	3.16	3.11	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.*

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 Car Park and Acoustic 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 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.

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

**Environmental:** GreenStuf Car Park and Acoustic Soffit Liner (ASL) is manufactured using 100% polyester fibre and contains a minimum of 57% previously recycled fibre content (from PET plastic). Greenstuf views waste as a resource with potential, not something to be disposed of. With this in mind, all product trimmings and offcuts are reused, and waste material goes back through production to make more GreenStuf.

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](https://www.greenstuf.co.nz)



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