

## DOUBLE SIDED FOIL FACED INSULATION



RMAX **ThermaStar™** is a new high density insulation system developed by RMAX that assists architects and building professionals achieve the important six star energy rating. Developed specifically for commercial applications it can be used in roofs, ceilings, walls, floors and sub-floors in both new constructions and retro fits. It has been designed for quick, easy, cost effective installation.



### Delivering 'Life of Structure' Six Star Energy Savings

While RMAX ThermaStar™ is manufactured typically in high densities (24 and 28 grams per litre) from RMAX Expanded Polystyrene (EPS), densities can and are customised to deliver the required R value for the particular application on site. Combined with the exceptional reflective qualities of aluminum foil, it produces excellent thermal insulation, assisting to provide the crucial six star energy rating as per BCA 2010 section J for insulation.

The combination of EPS and foil enables RMAX ThermaStar™ to reflect up to 97% of radiant heat.

As it does not deteriorate over time, RMAX ThermaStar™ provides a consistent high level of insulation for the life of a building through massive gains in R values.

Feature	Benefit
<b>Australian designed and made</b>	ThermaStar™ is designed and manufactured in Australia for Australian conditions providing easy access to product and short lead times for delivery.
<b>Six star compliant</b>	Enables architects to more easily meet the crucial six star energy rating required in today's buildings.
<b>Meets all industry compliance regulations – AS/NZS 4859, AS/NZS 3837 – BCA Group 1 – flame spread characteristics and meets the BCA 2010 section J energy ratings.</b>	Provides proof of performance and peace of mind to architects and building professionals.
<b>Excellent thermal insulation</b>	RMAX Polystyrene combined with double sided aluminium foil works to keep heat out in summer and contained inside the structure during winter, providing year round insulation, cutting heating and cooling costs.
<b>Heat reflectivity</b>	ThermaStar™ reflects up to 97% of radiant heat.
<b>Light weight, easy to use, easy to retrofit</b>	Easy to use, light weight, clean, easy to cut and fit. Panels can be easily carried and installed by one man and are easily cut to size, saving time and money in installation.
<b>Long term R values</b>	As it does not deteriorate over time, RMAX ThermaStar™ provides a consistent high level of insulation for the life of a building.
<b>Varying densities and thicknesses</b>	Enables the optimum product to be ordered to meet required rating requirements, thus saving costs. Combines excellent insulation and strength. Density can be customised to deliver the required R-value for the particular site application.
<b>Superior strength and rigidity</b>	Aluminium foil laminated to RMAX EPS provides additional strength and rigidity.
<b>Versatility</b>	ThermaStar™ is suitable for walls, floors, ceilings, roofs and sub-floor applications.
<b>Large panel size</b>	The 2500mm x 1200mm panels can quickly cover large surfaces, saving installation time.
<b>Fire resistant</b>	ThermaStar™ contains a fire retardant to reduce the likelihood of fire. This enables the EPS to self extinguish in small fires.
<b>Safe to use</b>	Non irritant, inert and does not contain harmful gases and is free of ozone depleting substances,
<b>Neutral environment</b>	Does not promote bacterial growth or provide a food source.
<b>Moisture resistant</b>	Retains its R values even under the harshest of conditions.
<b>Freeze-thaw cycling</b>	Maintains its insulative properties over the long term, regardless of weather conditions.

# High Performance in Winter and Summer

**ThermaStar™** combines the superior proven insulating qualities of RMAX Expanded Polystyrene with the exceptional reflective qualities of aluminium foil to produce an outstanding thermal insulation solution.

The double sided foil works to keep heat out in summer and contained during winter, providing year round insulation, cutting heating and cooling costs.

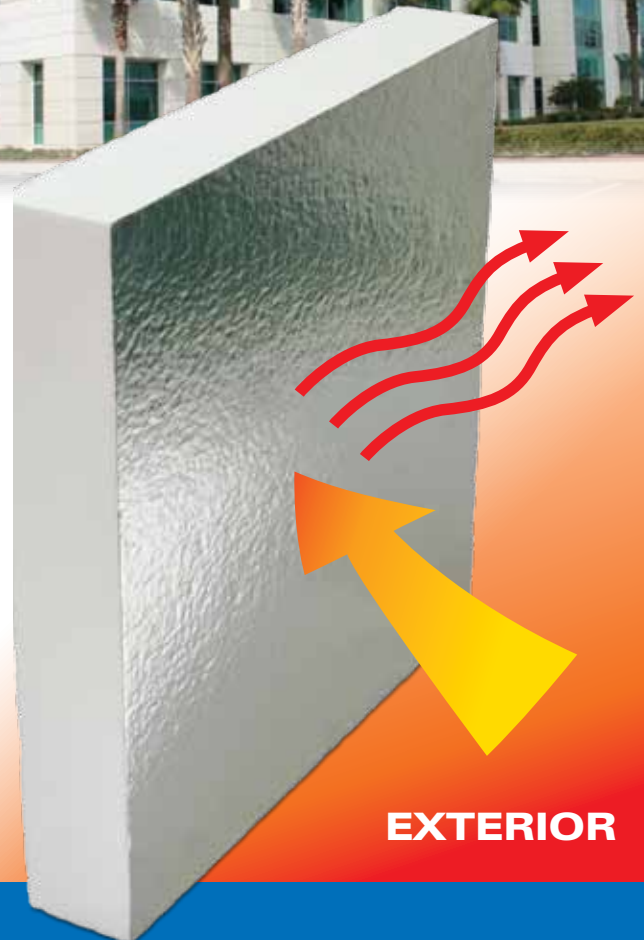
**Winter**



**INTERIOR**

Heat is retained within the structure during winter, saving on heating costs.

**Summer**



**EXTERIOR**

Heat is reflected and heat in-flow is restricted in summer, keeping the interior cool.

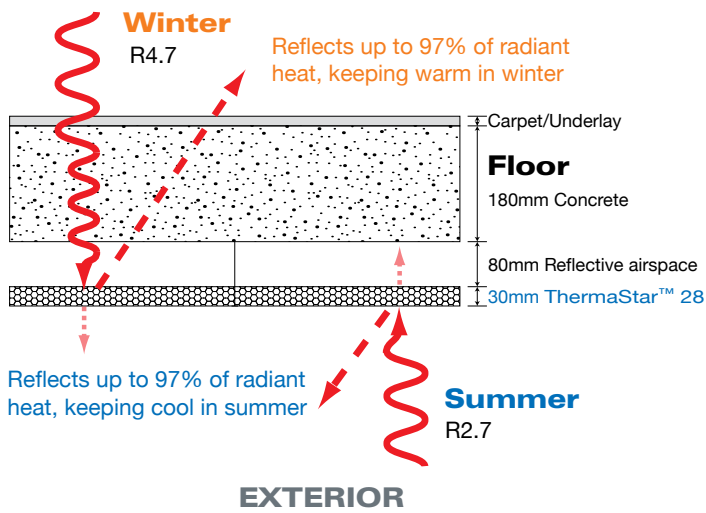
### Product Description

ThermaStar™ is a premium grade of expanded polystyrene from RMAX which has been manufactured to exceed Class H or VH of the Australian Standard AS 1366, Part 3-1992 for expanded polystyrene block materials combined with aluminium foil facing on both sides of the sheet.

ThermaStar™ is produced in various thicknesses to suit customer needs. The strength and excellent insulation performance characteristics of ThermaStar™ make it ideally suited as thermal insulation in floors, walls and roofs of commercial and high density residential buildings. ThermaStar™ products are free of ozone depleting substances.

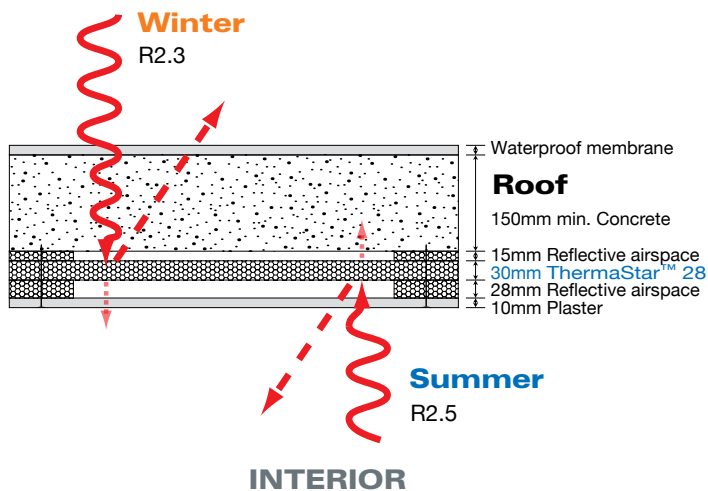
### Interior Floor Application

#### INTERIOR



### Exterior Roof Application

#### EXTERIOR



### Easy to work



ThermaStar™ is easy to work with – it can be cut with a circular saw or handsaw.

### Customised Thickness



Density and thickness can be customised to deliver the required R value for the particular site application.

### Cost effective installation



The 2500mm x 1200mm panels can quickly cover large surfaces, saving installation time.

# ThermaStar™ Product Technical Information

## Emissivity and Reflectivity

**Emissivity** is the amount of radiant heat energy emitted or radiated from the surface. The lower the emissivity value the greater the insulation protection from radiant energy transfer.

**Reflectivity** is the ability a surface has to reflect radiant heat energy. The higher the reflectivity, the less potential a material has to absorb radiant heat, the less heat is conducted through its mass and emitted or re-radiated through the opposite side.

## Physical Properties – ThermaStar™

Physical Property	Units	ThermaStar™ 24	ThermaStar™ 28	Test Method
Compressive Strength @10% deformation, min.	kPa	135	165	AS 2498.3
Cross-breaking Strength, min.	kPa	260	360	AS 2498.4
Rate of Water Vapour Transmission, max. measured parallel to rise @23°C	g/m2.s	460	350	AS 2498.5
Dimensional Stability of length width, thickness, max. @70°C over 7 days	percent	1	1	AS 2498.6
Core EPS Thermal conductivity max.	W/mk	0.0366	0.0350	AS/NZS 4859.1
Thermal Resistance, R, min. concrete sub floor. Note: Based on 180mm concrete, 80mm air gap, 30mm ThermaStar™*	m2.K/W		4.7 – Down (winter) 2.7 – Up (summer)	AS/NZS 4859.1
Weighted Sound Reduction (Rw)	dB (decibels)		30mm=11 dB 50mm=12 dB	AS 1191-2002
Fire Resistance (cone calorimeter)		Group 1	Group 1	AS/NZS 3837
Early Fire Hazard Properties Ignitability Index – scale 0-20 Spread of Flame Index – scale 0-10 Heat Evolved Index – scale 0-10 Smoke Produced Index – scale 0-10		0 0 0 0-1	0 0 0 0-1	AS/NZS 1530.3
Foil Emittance		0.03	0.03	AS/NZS 4859.1
Surface Corrosion		Pass	Pass	AS/NZS 4859.1
Wet/Dry Delamination		Pass	Pass	AS/NZS 4859.1
Apparent Bulk Density, core material min.	g/L	24	28	ISO 845

## Note: Perceived Change in Decibel Level

Change in Sound Level	Perceived Change to the Human Ear
± 1 dB	Not Perceptible
± 3 dB	Threshold of Perception
± 5 dB	Clearly Noticeable
± 10 dB	Twice (or Half) as Loud
± 20 dB	Fourfold (4x) Change

## Applications

RMAX ThermaStar™ is a versatile insulation medium, providing solutions to builders and designers seeking to achieve the six star energy rating.

The following table represents typical R values using ThermaStar™ 28 in different building systems.

System	Thickness	Summer R value*	Winter R value*
Concrete roof	30mm	2.5	2.3
Concrete roof	50mm	2.9	3.1
Concrete floor	30mm	2.2	2.5
Concrete floor	50mm	2.8	3.0

## Availability of Grades

Due to its adaptable nature ThermaStar™ can be used in a wide range of insulation applications such as roofs, ceilings, floors, walls and retrofits in commercial structures.

## Verification Information

\*These R values have been verified in accordance with AS/NZS 4859.1:2002/Amdt 1 2006. The values published are based on determinations based upon AS/NZS 4859.1:2002/Amdt1 2006, Material for Thermal Insulation of buildings and the Australian Institute of Refrigerations Air-Conditioning & Heating (AIRAH) Handbook (2007 Edition). Calculations incorporate dust assumptions of AS/NZS 4859.1:2002/ Amdt 1 2006. Total R values are for the insulation path only and include indoor and outdoor air films. Cavity air space insulation values were estimated using Reflect 3 software using infra-red emmittances e1 and e2 and defined air gaps. The results have been independently verified as per the requirements of AS/NZS 4859.1:2002/Amdt 1 2006. Other R values in this table are based on RMAX calculations. For verification of the RMAX calculated results please consult your RMAX sales representative.



## ThermaStar™ Panel Installation Recommendations

RMAX ThermaStar™ panels are compatible with a range of insulation fastening systems currently commercially available.

For best results, RMAX recommends the use of RAMSET InsulFast fixing systems for installation of its ThermaStar™ panels directly to concrete or steel. Please see below for application instructions and technical information. For further information regarding the RAMSET range of Insulfast fastening systems for use with RMAX ThermaStar™ insulation panels please contact RAMSET directly on 1300 780 063.

### Installation Procedure

1. Place the fastener assembly over the front end of the tool without compressing the fastener guide.
2. Force the fastener assembly through the insulation and compress the tool completely.
3. Once the fastener has reached the base material, (concrete / steel) release the pressure on the tool and allow the fastener guide to fully extend (by moving the tool away from the insulation by approximately 15mm).
4. While keeping hands away from the front of the tool, fully compress the tool against the insulation.
5. Immediately pull the trigger once the tool is fully compressed.
6. Remove the tool.

### Tool Specification

Part No.	INSULFASTGT
Impact force	100 Joules
Weight	3.4kg
Length	385mm
Insulation Fastener Capacity	75mm
Force Required to Activate	3.5kg
Power Source	** Fuel Cell
No. of Fixings / Fuel Cell	500
Power regulation	Automatic
Operating temperature	- 5°C to 49°C

### Fastener Specification

Fastener Body Material	High Density Polyethylene (HDPE)
Holding Diameter	60mm
Lengths Available	25mm to 75mm
Drive Pin Material	Carbon Steel
Drive Pin Plating	Mechanical Zinc Plate
Drive Pin Shear Strength	8.0kN

### Technical Load Data

Part No.	Concrete Strength	Tensile Working Load Limit WLL
IG625	25-45MPa	0.15kN
IG625B	25-45MPa	0.15kN
IG650	25-45MPa	0.15kN
IG650B	25-45MPa	0.15kN
IG675	25-45MPa	0.15kN
IG675B	25-45MPa	0.15kN

The recommended load (kN) is calculated from the mean ultimate load and a factor of safety higher than 4.

RMAX recommends a minimum of 5 fixings per fastened ThermaStar™ panel. One fastener should be applied in each corner of the panel and one in the middle of the panel. As concrete composition varies jobsite testing is recommended.

### Insulation Fasteners for Concrete, Masonry and Steel

Part No.	Rigid Insulation Thickness	Soft Insulation Thickness	Fastener Colour*	Order Quantity
IG625	25mm	25mm-30mm	Natural (White)	400
IG625B	25mm	25mm-30mm	Black	400
IG650	50mm	50mm-55mm	Natural (White)	300
IG650B	50mm	50mm-55mm	Black	300
IG675	75mm	75mm-85mm	Natural (White)	250
IG675B	75mm	75mm-85mm	Black	250

\*Other sizes and colours such as silver, to a maximum of 75mm in length are available on request. Minimum order quantities and lead times apply.

\*\* Fuel cells are included with all fasteners





RMAX Environmental EPS

## RMAX and the Environment

EPS (Expanded Polystyrene) is highly energy efficient. The energy saved over the lifetime of an EPS insulation panel in reduced heating demand, more than compensates for the raw material used in its production.

The effective application of EPS insulation can cut carbon dioxide emissions by up to 50%. The energy used in its manufacture is recovered within six months by the energy saved in the buildings when EPS is used.

RMAX promotes the use of EPS, with its superior thermal insulation properties, for the construction of buildings to lower energy requirements and reduce the impact of new buildings on the environment.

RMAX EPS is free from ozone depleting substances in manufacture and composition. EPS is made without CFCs, HCFCs or HFCs. Manufacturing is done with blowing agents that have Zero Ozone Depleting Potential (ODP).

## Recycling EPS

EPS products are recyclable and RMAX has established recycling facilities in all of its plants throughout Australia.

RMAX is a member of PACIA (Plastics and Chemical Industries Association) and helped establish the EPS Industry Group, known as EPSA (Recycling Expanded Polystyrene Australia). RMAX, through EPSA play a major role in facilitating the collection and recycling of EPS in Australia.

## Energy Efficient Manufacture

The manufacture of EPS is a low pollution process. Steam is the key ingredient and the water is used many times. There is no waste in production as all off cuts or rejects are re-used.

## RMAX - Innovation Working for You

RMAX is a company driven by innovation. We have pioneered Rigid Cellular Plastics product technologies, leading the development of innovative product solutions for our customers and international partners.

In the Australian building industry, RMAX was the first to introduce termite resistant expanded polystyrene (EPS) - Isolite® Perform Guard® EPS. The exclusive patented technology incorporates a safe, non-toxic inorganic additive that is a deterrent to termites.

Other innovative products include RMAX ThermaWallSilver® and RMAX ThermaProof™, which use advanced BASF technology in their manufacture, providing the building industry with 'specific use' insulation products.

We are committed to working with our customers to deliver high quality creative solutions to construction problems. Contact us and see how our innovative approach using EPS in building construction can help you.

## Developed in Australia. Made in Australia.

ThermaStar™ has been developed in Australia by RMAX specifically for Australian conditions and to meet the stringent Australian Building codes in all states. It is manufactured in RMAX plants in Australia in controlled production processes to maintain consistent quality.

RMAX is Australia's leading producer of expanded polystyrene for domestic, commercial industrial and civil engineering.

Visit our website - [www.rmax.com.au](http://www.rmax.com.au) or call 1300 888 972 and talk to one of our specialists.



All Greenhouse Gas emissions associated with printing this product have been offset.

This product is 100% Carbon Neutral



[www.rmax.com.au](http://www.rmax.com.au)

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## Mixed Sources

Product group from well-managed forests and recycled wood or fiber  
[www.fsc.org](http://www.fsc.org) Cert no. SGS-COC-2586  
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