

FOIL BOARD[®]

INSULATION PANEL

THE RIGID INSULATION PANEL FOR WALLS, ROOFS & FLOORS

**TECHNICAL
BROCHURE**

BCA-compliant to
AS/NZS 4859.1

MADE IN 4
THICKNESSES

STANDARD 10
SUPER 15
ULTRA 20
CATHEDRAL 25

SHEET SIZES

2440 x 1200

2700 x 1200

(Available only in 10 & 15)



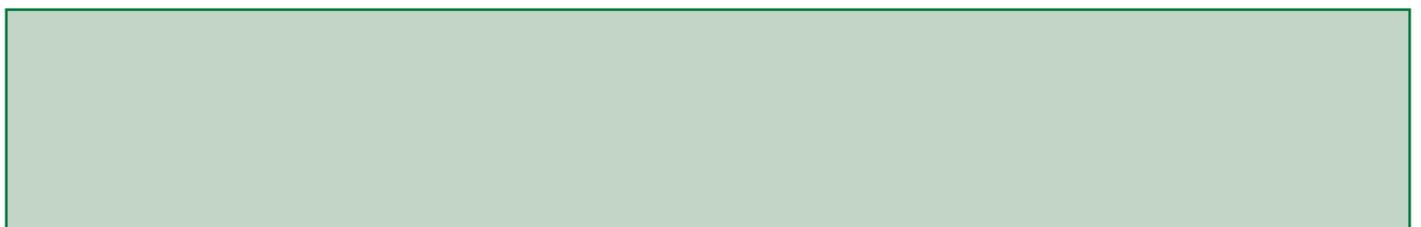
SUPER 15 FOILBOARD[®] INSULATION PANEL has been used on 2.7m walls in Sandringham to achieve an R2.2 rating by a Melbourne project builder. This one insulation product provides a weather proof shield and can slash construction time by up to two weeks. Internal trades go ahead immediately without waiting for brickwork.

BEAT RISING ENERGY COSTS

- SAVE ON ENERGY BILLS
- EXCELLENT THERMAL RATINGS
- EXCELLENT ACOUSTIC RATINGS
- IMPERVIOUS TO MOISTURE
- WILL NOT DELAMINATE
- NO HARMFUL FIBRES
- SAFE TO HANDLE
- EARLIER LOCK-UP
- WEATHERPROOF
- VERMIN RESISTANT
- FIRE RETARDANT
- EAST TO INSTALL
- NO GAPS
- WILL NOT SAG
- LIGHTWEIGHT

The R-Values shown in this brochure are Total R-Values for the building system installed with Foilboard[®] Insulation Panel. Values are based on product in in-service condition in accordance with AS/NZS 4859.1:2002.

THE SMARTER WAY TO INSULATE



FOIL BOARD[®] INSULATION PANEL



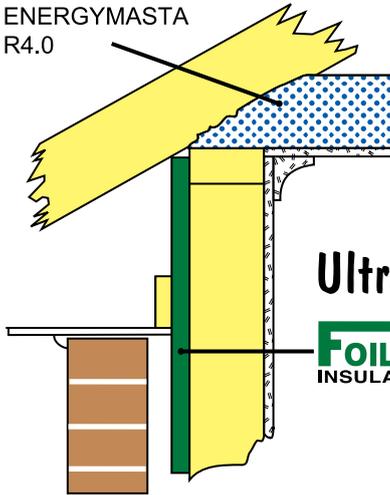
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Registered Design:
No 142133

FRAMED WALLS

FOILBOARD[®] INSULATION PANEL is more than just insulation — when used externally on framed walls it provides a weatherproof shield that enables internal trades to proceed without waiting for brickwork or cladding completion. Since paper based products are not used in its manufacture FOILBOARD[®] INSULATION PANEL does not delaminate or breakdown in prolonged wet and windy conditions. Our exclusive fasteners ensure that FOILBOARD[®] INSULATION PANEL will withstand severe weather.

1 BRICK VENEER - TIMBER / STEEL FRAME

ENERGYMASTA
R4.0



Saves time and
money

Only one product
to install

Ultra 20 - **R2.6**

FOIL BOARD
INSULATION PANEL

Quick, lightweight
& easy to install

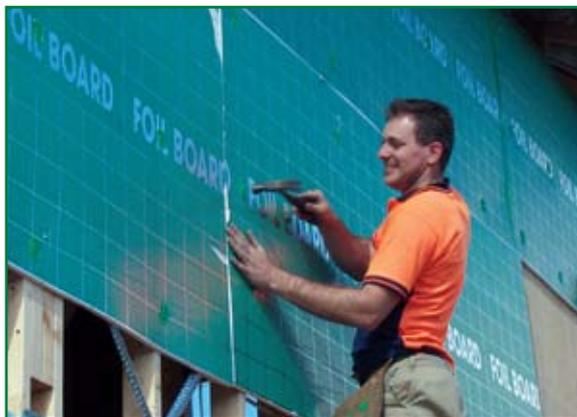
Brick - Min 90mm / Reflective airspace - Min 20mm / Timber Min 90mm

FOILBOARD[®] INSULATION PANEL will not sag and leave uninsulated pockets - The full 'R' value lasts for the life of the building. Once fixed in place, it will maintain complete coverage for the life of the building. As it covers the frame, there can be no loss of effectiveness via thermal bridging through the frame.

	Heat flow out	Heat flow in
Ultra 20 -	R2.6	R2.6
Super 15 -	R2.2	R2.2
Standard 10 -	R1.8	R1.8

INSTALLATION SUGGESTIONS — Installation of FOILBOARD[®] INSULATION PANEL is best done after frame, bracing, roof, fascia, flashing, windows and plumbing rough in are all complete and frame inspection is passed. Please note: for a proper fit, plumbing should be connected to floor joist or 400-500mm above bottom plate. Electrical wiring should be done after FOILBOARD[®] INSULATION PANEL is installed. In windy conditions it is suggested that the windward side is sheeted first, thus sheltering the rest of the job. FOILBOARD[®] INSULATION PANEL may be easily cut to size with a long snap blade knife, handsaw or breadknife.

The top sheets should be fitted first (push up until they hit the underside of rafters) cutting and fitting around rafters will then be avoided. Three fasteners per stud are recommended in windy situations. The FOILBOARD[®] INSULATION PANEL can be butt joined using the tape provided with the fasteners. Joins do not need to be on studs or noggin. For a perfect job sheets should lap onto top and bottom plates even if by only 10mm. Lintels should be covered and sheets butted at corners. Tape gaps and holes to prevent air infiltration which lowers "R" value.



TESTIMONIAL

ATTENTION: Laurie Moylan
Foilboard Australia Pty Ltd
9 Dissik Street
CHELTENHAM VIC 3192

27th April 1995

Dear Laurie

I would like to thank your company and staff for the excellent installation of Foilboard[®] on our house under construction at 667 Nepean Hwy, Carrum.

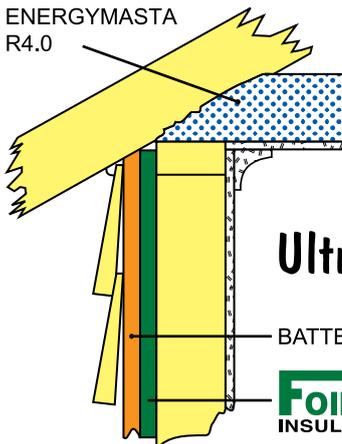
It may be of interest to you, that the evening after installation, the site was hammered by gale winds and rain off the bay and the Foilboard[®] remained intact. I am quite sure that an alternative house wrap product would not have survived such conditions.

Best Regards

Paul Kelsey

2 W.B. OR CLADDING - TIMBER / STEEL FRAME

ENERGYMASTA
R4.0



Eliminates
Thermal
Bridging

Ultra 20 - **R2.4**

FOIL BOARD
INSULATION PANEL

A thermal bridge is created when materials that are poor insulators come in contact, allowing heat to flow through the path created.

Attached to the face of studs, FOILBOARD[®] INSULATION PANEL eliminates thermal bridging through the frame and air infiltration.

	Heat flow out	Heat flow in
Ultra 20 -	R2.4	R2.4
Super 15 -	R2.0	R2.0

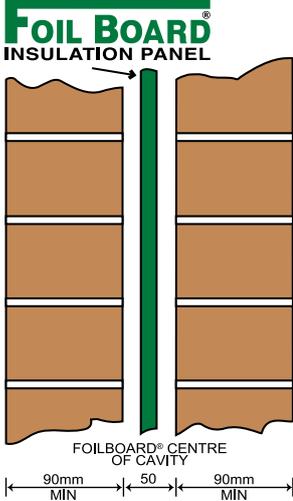
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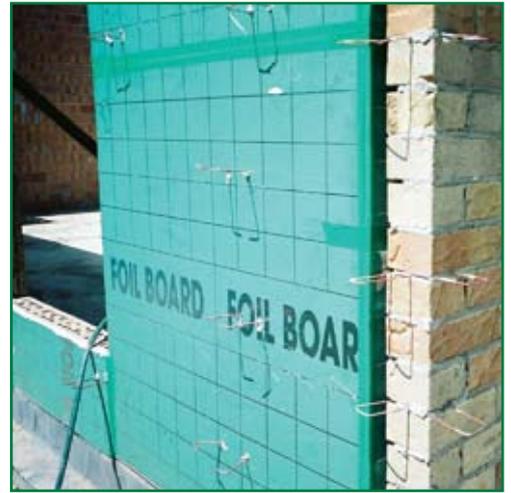
DOUBLE BRICK & TIMBER FLOORS

3 DOUBLE BRICK



Without insulation a cavity brick wall has an 'R' value of 0.5. FOILBOARD[®] INSULATION PANEL in the cavity will achieve R1.8 with STANDARD 10 and R2.2 with SUPER 15. FOILBOARD[®] INSULATION PANEL is easy to install during the construction of double brick walls. It is customary to run the inner skin of brickwork up at least 1200mm and then push FOILBOARD[®] INSULATION PANEL sheet onto protruding wall ties. Taping holes around ties secures the sheet in position. The joints between sheets are taped.

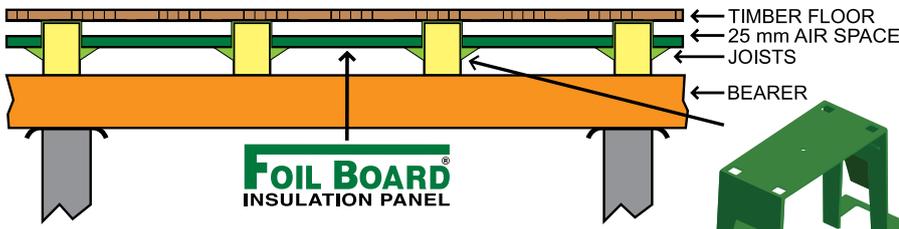
	Heat flow out	Heat flow in
Super 15 -	R2.2	R2.2
Standard 10 -	R1.8	R1.8



4A UNDERFLOOR - TIMBER FLOOR

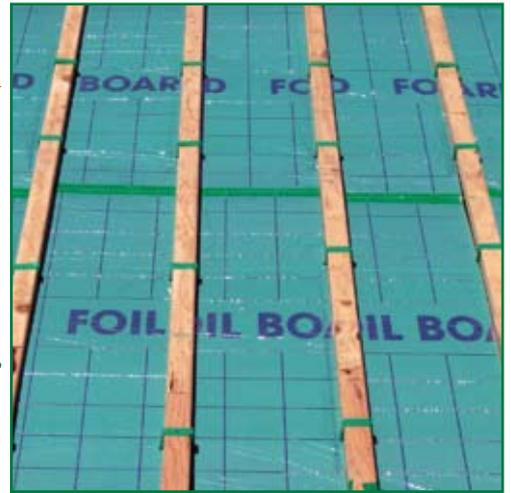
FOIL BOARD[®] FLOOR SADDLE

THE EASIER WAY TO INSULATE UNDER TIMBER FLOORS



	Heat flow out	Heat flow in
Super 15 -	R2.6	R1.3
Standard 10 -	R2.2	R1.2

REQUIRES NO FASTENING • GLUEING • STAPLING
UNDER TIMBER FLOOR INSULATION SYSTEM



AU Des Reg 309071

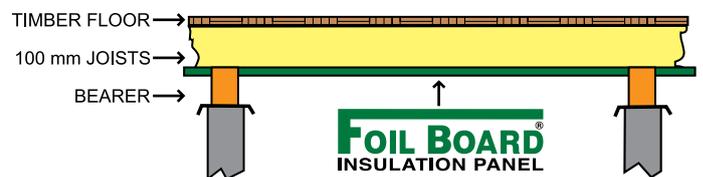
INSTALLATION SUGGESTIONS - Installation of FOILBOARD[®] INSULATION PANEL and FLOOR SADDLES is best done after joists are fixed to bearers and before yellow tongue or strip flooring is laid down. It is recommended that for best-fit plumbing rough in and all other services under floor are complete. FOILBOARD[®] INSULATION PANEL is lightweight, easy and safe to handle. It may be easily cut to size using long snap blade knife. Off-cuts can be taped and re-used. Space FOILBOARD[®] FLOOR SADDLES on top of floor joists at approximately 600mm centres. Saddles should be spaced 200mm from end of sheet. At double joists simply cut the FOILBOARD[®] FLOOR SADDLE in half and fasten with a nail.

Push FLOOR SADDLES down so that the specially designed teeth can grip the joist. Cut FOILBOARD[®] INSULATION PANEL to size to fit in-between joists. Place sheet between joists, resting on the lip of the FLOOR SADDLES. Gently apply pressure to the FOILBOARD[®] INSULATION PANEL until it clicks into place with our patented lock-in flap design. This will prevent wind from unsettling the sheet from underneath. For a perfect job sheets should be taped where they join. Tape or silicone gaps and holes to prevent air infiltration that lowers the 'R' value.

4B UNDERFLOOR - RETRO FIT

When fixed directly to under side of floor joists, FOILBOARD[®] INSULATION PANEL greatly improves the thermal performance of a timber floor. With an existing house where it is impossible to get into walls and roof space is limited FOILBOARD[®] INSULATION PANEL offers a 'last chance' to lower heating costs and improve comfort, especially under feature timber floors.

INSTALLATION SUGGESTIONS - FOILBOARD[®] INSULATION PANEL should be fixed directly to the underside of joists using FOILBOARD[®] FASTENERS. It is recommended that FOILBOARD[®] spans across joists and between bearers using 3 fasteners per joist. Joins do not need to be made on a joist and taping eliminates thermal bridging.

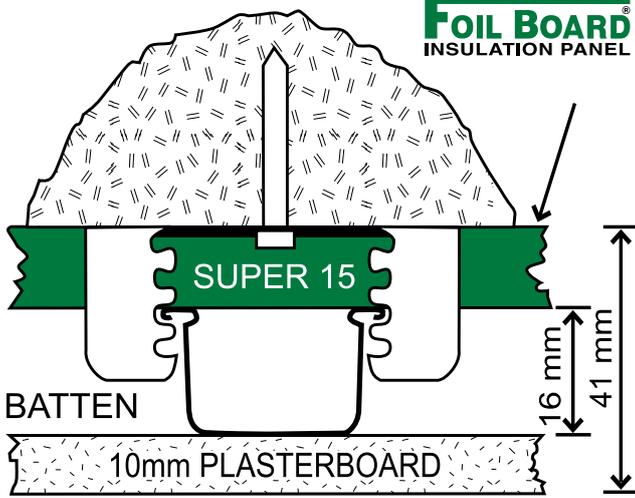


	Heat flow out	Heat flow in
Super 15 -	R3.5	R1.5
Standard 10 -	R3.1	R1.3



5 CONCRETE WALLS - SINGLE REFLECTIVE AIRSPACE

Slimline Solution



WALLS

	Heat flow out	Heat flow in	Airspace
Ultra 20 -	R1.8	R1.8	28mm Batten
Super 15 -	R1.6	R1.6	28mm Batten
Standard 10 -	R1.4	R1.4	28mm Batten
Ultra 20 -	R1.5	R1.5	16 mm Batten
Super 15 -	R1.3	R1.3	16 mm Batten

A 150mm thick concrete wall with plasterboard has a rating of only R0.3. A FOILBOARD[®] INSULATION PANEL system will transform it to the high values shown.

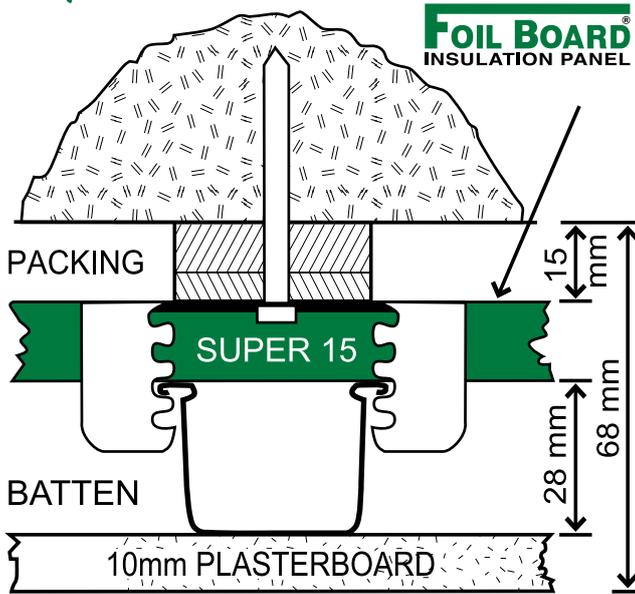
6 CEILINGS - SINGLE REFLECTIVE AIRSPACE

CEILINGS

	Heat flow out	Heat flow in	Airspace
Ultra 20 -	R1.5	R1.9	28mm Batten
Super 15 -	R1.3	R1.7	28mm Batten

7 CONCRETE WALLS - DUAL REFLECTIVE AIRSPACE

Easy to Install



WALLS

	Heat flow out	Heat flow in	Airspace
Ultra 20 -	R2.3	R2.3	28mm Batten
Super 15 -	R2.2	R2.2	28mm Batten
Standard 10 -	R2.0	R2.0	28mm Batten
Ultra 20 -	R2.1	R2.1	16 mm Batten
Super 15 -	R1.9	R1.9	16 mm Batten

In this configuration the double air space achieves higher R values and improved acoustic properties still with only a single sheet of FOILBOARD[®] INSULATION PANEL. Standard packers are readily available through plaster suppliers to achieve the 15mm space.

8 CEILINGS - DUAL REFLECTIVE AIRSPACE

CEILINGS

	Heat flow out	Heat flow in	Airspace
Ultra 20 -	R2.0	R2.4	28mm Batten
Super 15 -	R1.8	R2.2	28mm Batten
Standard 10 -	R1.6	R2.0	28mm Batten

CAN BE USED INTERNALLY WITH PLASTERBOARD OR EXTERNALLY WITH CLADDING

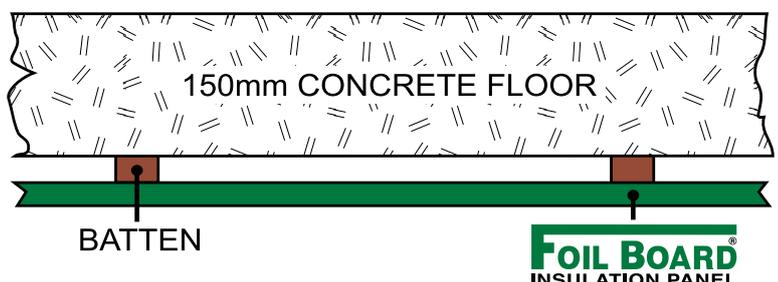
ACOUSTIC RATINGS STC Values are available for various systems. Up to STC: 57, Rw: 56.

REFLECTIVE AIR SPACE The air space in the above systems inhibits the transfer of moisture and the formation of mould

9 UNDER CONCRETE FLOOR

Where heating is used in suspended floor slabs, FOILBOARD[®] INSULATION PANEL achieves considerable energy savings.

	Heat flow out	Heat flow in
Ultra 20 -	R2.8	R1.8
Super 15 -	R2.6	R1.6



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CONCRETE SYSTEMS & CATHEDRAL ROOF

Here are some of the many advantages in combining FOILBOARD[®] INSULATION PANEL with standard plasterboard metal battens and adjustable brackets –

1. High accredited R-Values are achieved.
2. An air gap is formed that inhibits the transfer of moisture.
3. FOILBOARD[®] INSULATION PANEL with its pure aluminium facings provides a highly efficient reflective airspace.
4. Cheaper hardware components combined with ready availability and plasterers experience in their use means lower subcontractors tenders on your plaster package.
5. The external wall treatment is enhanced by FOILBOARD[®] INSULATION PANEL's resistance to moisture and humidity. Taping of sheet joints stops moisture, air infiltration and eliminates thermal bridging

INSTALLATION SUGGESTIONS

1. Install adjustable clips @ 600 centres.
2. Push FOILBOARD[®] INSULATION PANEL over clips completely covering wall (in very windy situations it may be necessary to glue to concrete)
3. Tape joints.
4. Push battens into adjustable clips.
5. Screw plasterboard to battens.



MCG SOUTHERN STAND REDEVELOPMENT
Architects; Daryl Jackson Architects - Cox Sanderson Ness-Tompkins Shaw & Evans. Fitout; Plaza Interiors

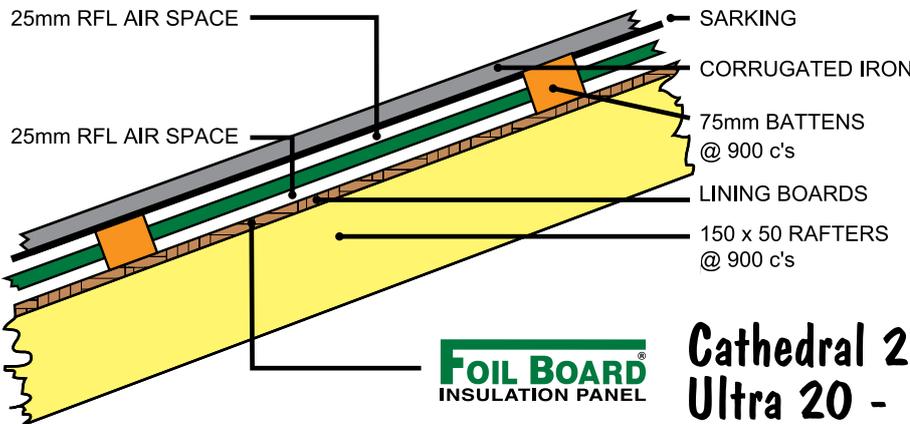


MOTOROLA OFFICE BUILDING - Here we demonstrate how FOILBOARD[®] INSULATION PANEL is applied to concrete structures using Beta-Fix adjustable clips and standard Rondo firing channel.



REPUBLIC TOWER MELBOURNE
Architect; Fender & Katsilidis Pty Ltd
Builder; Multiplex

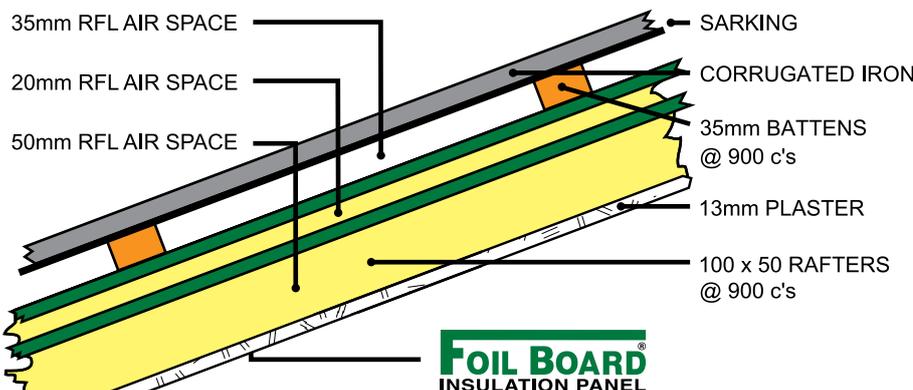
10A CATHEDRAL ROOF - TILE / IRON



Where cavities are at a minimum FOILBOARD[®] INSULATION PANEL offers a slimline solution to your cathedral problems with impressive R ratings.

	Heat flow out	Heat flow in
Cathedral 25 -	R2.5	R3.0
Ultra 20 -	R2.3	R2.7

10B CATHEDRAL ROOF - RETRO FIT



Two layers of FOILBOARD[®] INSULATION PANEL are fitted to a cathedral ceiling in between rafters. The reflective air space between the two sheets of FOILBOARD[®] is required to enable a higher 'R' value.

INSTALLATION SUGGESTIONS – First sheet is installed to the underside of the roof batten using fasteners. Second sheet is then spaced (20mm min) using packers or battens. Cut second sheet 3-4mm over span and wedge sheet between rafters. This sheet can also be glued into place using a water based building adhesive.

	Heat flow out	Heat flow in
Super 15 -	R3.2	R4.0

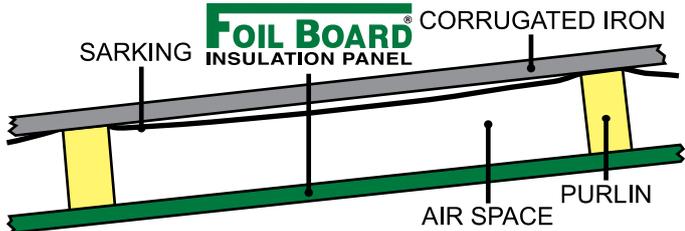
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FACTORY / SHED & DEVELOPMENT

11 FACTORY - SHED ROOF & WALLS



ROOF

Cathedral 25 -
Ultra 20 -
Super 15 -

	Heat flow out	Heat flow in
Cathedral 25 -	R1.9	R4.0
Ultra 20 -	R1.7	R3.5
Super 15 -	R1.5	R3.0

WALL

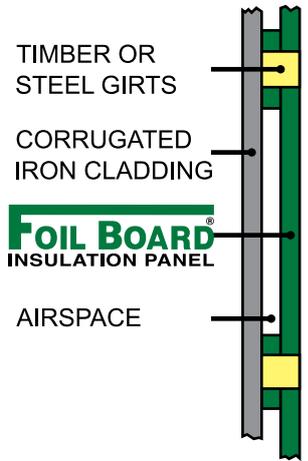
Ultra 20 -
Super 15 -

Ultra 20 -	R1.6	R1.6
Super 15 -	R1.2	R1.2

Foilboard[®] Ultra Fasteners are suitable for fixing to the face of timber and self drilling screws with washers to steel. Use adhesive to hold in place where fitting Foilboard[®] between framing members. Aluminium tape is recommended to tape all joins.

It is most important to have an airspace between cladding and Foilboard[®]. This can be achieved by using the "Fold back" method or by using blocks of Foilboard[®].

Battening & lining walls & roof will add an extra R0.5 to total system values



KOOKABURRA MANUFACTURING PLANT- REFURBISHMENT
Here FOILBOARD[®] INSULATION PANEL was used to drastically improve the thermal efficiency of this factory. The pure aluminium foil laminated to FOILBOARD[®] also helped increase the ambient light whilst adding to the aesthetics.



B.P.S. Technical Bookshop
FOILBOARD[®] INSULATION PANEL was used here to retro fit an old storehouse to a retail outlet. The developers were keen to maintain the industrial look of the building whilst drastically improving thermal efficiency.

DEVELOPMENT OF FOILBOARD[®]

During 1991, having been involved in the manufacture and installation of cellulose insulation for some fifteen years, Laurie Moylan Director of Fibre Fluf Home Insulation saw the need for a non-allergenic wall insulation to complement its ceiling insulation.

Through its sister company, Tri-Foam Australia, the invention of FOILBOARD[®] INSULATION PANEL followed. Primarily designed for brick veneer construction, FOILBOARD[®] INSULATION PANEL has been widely accepted by the construction industry because in addition to being good insulation, it fits in perfectly with the 'Critical Path Method' by giving immediate weatherproofing and allowing inside trades to proceed without waiting for completion of brickwork or cladding.

Continuous development by our Technical and Manufacturing departments has resulted in the design of many new systems including those for pre-cast concrete panels and slimline cathedral roofs. Latest development of an under timber floor fastening system led to the invention of the floor saddle, making FOILBOARD[®] easier to install under timber floors.

Foilboard Australia Pty Ltd is committed to developing, manufacturing and delivering the best in insulation products available on the market.



FOILBOARD[®] INSULATION PANEL is being used in conjunction with the FOILBOARD[®] FLOOR SADDLE during the construction process. Note the ease of application.

DESIGN SERVICE

For Accreditation purposes all 'R' value calculations have been conducted by an independent laboratory, however FOILBOARD[®] INSULATION PANEL's own technical department is able to do preliminary calculations in accordance with BCA (Building Codes of Australia) and AIRAH (Australian Institute of Refrigeration, Air-

Conditioning and Heating) guidelines.

If you wish to adapt any of the systems as described within this brochure to your special needs or just simply require advice please do not hesitate to contact our experienced and friendly Technical Department.



PRODUCT SPECIFICATIONS

SPECIFICATION

FOILBOARD[®] INSULATION PANEL is manufactured from fire retardant expanded polystyrene with pure aluminium foil laminated to both sides, an anti-glare ink is applied to one side that is designed to not impede with the reflectiveness of the foil. Where volume is sufficient FOILBOARD can be manufactured in thicknesses of up to 100mm. FOILBOARD[®] INSULATION PANEL is manufactured in Australia from all Australian materials.

	Standard 10		Super 15		Ultra 20	Cathedral 25
Reflectance						
Anti-Glare Face	95%		95%		95%	95%
Reflective Face	97%		97%		97%	97%
Emittance						
Anti-Glare Face	E0.05		E0.05		E0.05	E0.05
Reflective Face	E0.03		E0.03		E0.03	E0.03
Sheet Thickness	10mm		15mm		20mm	25mm
Sheet Size (mm)	2440 x 1200	2700 x 1200	2440 x 1200	2700 x 1200	2440 x 1200	2440 x 1200
Weight (grams)	767	848	995	1100	1233	1467
Density (kg/m³)	13.5 kg/m ³		13.5 kg/m ³		13.5 kg/m ³	13.5 kg/m ³
Core	Fire Retardant SL Grade EPS		Fire Retardant SL Grade EPS		Fire Retardant SL Grade EPS	Fire Retardant SL Grade EPS
Surface	20 Micron 100% Pure Aluminium		20 Micron 100% Pure Aluminium		20 Micron 100% Pure Aluminium	20 Micron 100% Pure Aluminium
Anti Glare	Metal Etching UV Stabilized Green Ink Spec Formula: 21477		Metal Etching UV Stabilized Green Ink Spec Formula: 21477		Metal Etching UV Stabilized Green Ink Spec Formula: 21477	Metal Etching UV Stabilized Green Ink Spec Formula: 21477
Adhesive	Contact Adhesive Proprietary Formula		Contact Adhesive Proprietary Formula		Contact Adhesive Proprietary Formula	Contact Adhesive Proprietary Formula
Ozone Depleting Substances						
Content	0		0		0	0
Manufacture	0		0		0	0
VOC (volatile organic compound)						
Content	0		0		0	0
Manufacture	< 0.8 g/l		< 0.8 g/l		< 0.8 g/l	< 0.8 g/l
Rate of Vapour (EPS only) Transmission (max) ug/m²s	630		630		630	630

PRODUCT TESTING

Thermal Performance	AS/NZS 4859.1	Rigid Cellular Polystyrene - Moulded	AS 1366.3
Surface Corrosion Resistance	AS/NZS 4859.1 Appendix I	Nominal Density	AS 1366.3
Thermal Resistance	ASTMC518	Cone Calorimeter	AS/NZS 3837
Emittance	ASTC-E408	Vapour Transmission	AS 2498.5
Ignitability	AS 1530.3	Dry Delamination	AS/NZS 4201.1 Method 1
Flame Spread	AS 1530.3	Wet Delamination	AS/NZS 4201.1 Method 2
Heat Evolved	AS 1530.3	Shrinkage	AS/NZS 4201.3 Method 3
Smoke Developed	AS 1530.3	Water Barrier	AS/NZS 4201.4

Comparative testing of some materials to AS 1530.3 – Early Fire Hazard Test

Material	Ignitability Index (0-20)	Spread of Flame Index (0-10)	Heat evolved Index (0-10)	Smoke developed Index (0-10)
FOILBOARD [®]	0	0	0	0-1
EPS	12	0	3	5
Australian Softboard	16	9	7	3
Oregon	13	6	5	3



SUMMARY OF 'R' VALUES

SYSTEM	REF NO#	APPLICATION	PRODUCT	HEAT FLOW OUT	HEAT FLOW IN
RESIDENTIAL WALLS					
	1	Brick Veneer Wall	Ultra 20	R2.6	R2.6
			Super 15	R2.2	R2.2
			Standard 10	R1.8	R1.8
	2	Cladded Wall	Ultra 20	R2.4	R2.4
			Super	R2.0	R2.0
	3	Double Brick	Super 15	R2.2	R2.2
			Standard 10	R1.8	R1.8
UNDERFLOOR					
	4A	Floor Saddle	Super 15	R2.6	R1.3
			Standard 10	R2.2	R1.2
	4B	Retro Fit	Super 15	R3.5	R1.5
			Standard 10	R3.1	R1.3
CONCRETE SYSTEMS					
	5	Wall Single Airspace -	28mm Batten	Ultra 20	R1.8
			28mm Batten	Super 15	R1.6
			28mm Batten	Standard 10	R1.4
			16mm Batten	Ultra 20	R1.5
			16mm Batten	Super 15	R1.3
	6	Ceiling Single Airspace -	28mm Batten	Ultra 20	R1.5
			28mm Batten	Super 15	R1.3
	7	Wall Dual Airspace -	28mm Batten	Ultra 20	R2.3
			28mm Batten	Super 15	R2.2
			28mm Batten	Standard 10	R2.0
			16mm Batten	Ultra 20	R2.1
			16mm Batten	Super 15	R1.9
	8	Ceiling Dual Airspace -	28mm Batten	Ultra 20	R2.0
			28mm Batten	Super 15	R1.8
			28mm Batten	Standard 10	R1.6
	11	Concrete Floor	Ultra 20	R2.8	R1.8
			Super 15	R2.8	R1.6
CEILING SYSTEMS					
	9A	Cathedral Roof	Cathedral 25	R2.5	R3.0
			Ultra 20	R2.3	R2.7
	9B	Cathedral Roof - Retrofit	Super 15	R3.2	R4.0
	10	Factory / Shed Roof	Cathedral 25	R1.9	R4.0
			Ultra 20	R1.7	R3.5
			Super 15	R1.5	R3.0
	11	Factory / Shed Wall	Ultra 20	R1.6	R1.6
			Super 15	R1.2	R1.2

GUARANTEED 'R' VALUES

Whether for a small house or a multi-million dollar project, ACCURATE insulation "R" values are essential in making decisions that affect energy costs and comfort.

FOILBOARD[®] INSULATION PANEL values have been calculated by an independent laboratory, checked by another Thermal Engineer and then submitted to the Building Regulations Advisory Committee for evaluation. The R-Values shown are Total R-Values for the building system and are based on independent computations using proven data. Values are based on product in in-service condition in accordance with AS/NZS 4859.1:2002.

Careful consideration of your insulation system can drastically reduce your heating and cooling costs. Accreditation enables your private or Council Building Surveyor to quickly ascertain that your project complies with current regulations thus avoiding costly delays.

All the "R" values shown in:

RED are for **HEAT FLOW OUT** and are calculated to a DELTA T of 6: Indoors 18°C, outdoors 12°C (6K difference), mean 15°C

BLUE are for **HEAT FLOW IN** and are calculated to a DELTA T of 12: Indoors 24°C, outdoors 36°C (12K difference), mean 30°C

THE SMARTER WAY TO INSULATE

SAVES MONEY
SAVE ON ENERGY BILLS

EXCELLENT PERFORMANCE
GUARANTEED R VALUES

NO GAPS
ELIMINATES THERMAL BRIDGING

CLEAN & SAFE
EASY TO HANDLE
NO HARMFUL FIBRES

WEATHERPROOF
WILL NOT DELAMINATE
IMPERVIOUS TO MOISTURE

ACCREDITATION
NO DELAYS BY AUTHORITIES

WILL NOT SAG
MAINTAINS COVERAGE FOR
LIFE OF THE BUILDING