WREN INDUSTRIES Pty. Ltd.

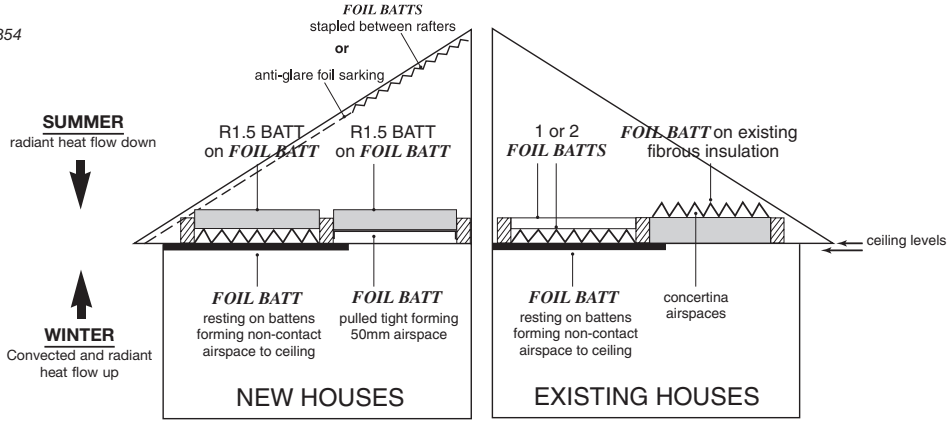
139 Herald Street
CHELTENHAM VIC 3192
Tel: (03) 9532 5855 Fax: (03) 9532 5854
www.concertinafoilbatts.com

SUMMER HEAT IS ***RADIANT HEAT***

CONCERTINA
FOIL BATTS™
THE ***RADIANT HEAT*** BARRIER

THERMAL INSULATION FOR
CEILINGS • WALLS • FLOORS

AUSTRALIAN MADE AND OWNED



FOIL BATTS STOP ***RADIANT HEAT***

As everyone knows, the ground floor of a two storey house is much cooler than upstairs. And the reason is because the radiant heat has been eliminated. ***FOIL BATTS*** laid over the ceiling can do the same.
(i) see Fig. H & I below.
(ii) or when placed on top of existing bulk insulation.
Radiation into the house is greatly reduced, thus lowering room temperature and fuel bills. For example, imagine the difference in running costs of an airconditioner upstairs compared to downstairs. Downstairs, overhead fans will often be sufficient without airconditioning.

It must be understood that the R values that are published for fibrous insulation have been calculated based on tests done for winter conducted heat between a metal hot plate set at 33˚ and a cold plate of 13˚, which measures the R value. But in summer, the heat radiating from the underside of the roof is around 80˚ - 100˚.

There have been no tests done for radiant heat, and summer heat is radiant not conducted. Fibrous insulation does not stop radiant heat – it just slows it down but the ceiling still gets warm and this heat is radiated into the house. With the ***FOIL BATT*** system the foil airspace is much cooler and when the cool change comes there is no longer a warm blanket over your head radiating at you.

So, for new or existing houses, you can stop summer radiant heat on your ceiling by:

(i) laying a concertina ***FOIL BATT*** on the ceiling and another laid across, see Fig. I below.

(ii) ***FOIL BATT*** laid on top of fibre insulation – overlapped, no stapling.

This will decrease the heat load and improve comfort within the house, see Fig. B below. It also improves conservation of heat loss in winter, see Fig. B & I below, showing similar winter performance.

FOIL BATTS in the ceiling:

- Increase summer comfort
- Ease heat load on airconditioning = lower power bills
- Ceiling fans and natural ventilation can eliminate the need for expensive refrigerative airconditioning
- Provide summer and winter benefit - winter heat escape must be stopped at the ceiling, not the roof
- Easily installed D.I.Y. insulation-ideal for the handyman
- Ceiling joists not covered for easy identification

RAFTERS
Another way to improve comfort is to lower the heat load on airconditioning ductwork in the attic by simply stapling ***FOIL BATTS*** to the rafters. This greatly reduces the radiation of around 80˚ from the underside of the roof and will provide lower running costs for summer cooling.

For attic extensions with narrow depth rafters, two ***FOIL BATTS*** pulled tight will stop radiation better than using bulk insulation.

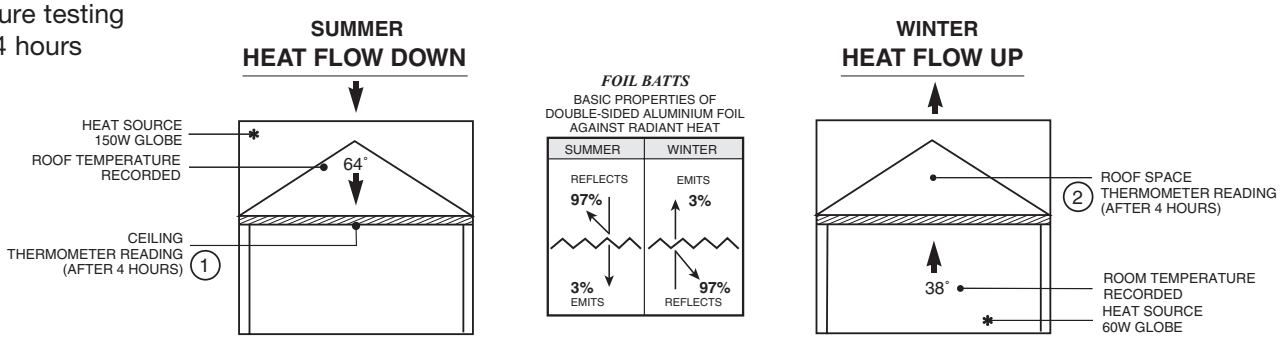
REMEMBER: THE PUBLISHED DAILY TEMPERATURE IS SHADE TEMPERATURE, NOT ACTUAL RADIANT HEAT IN ROOF SPACES OR OUT IN THE SUN.

CEILING APPLICATIONS

THERMAL INSULATION PERFORMANCE

WREN TESTING – MAY 1996 (enclosed model house with metal roof)

Temperature testing period = 4 hours

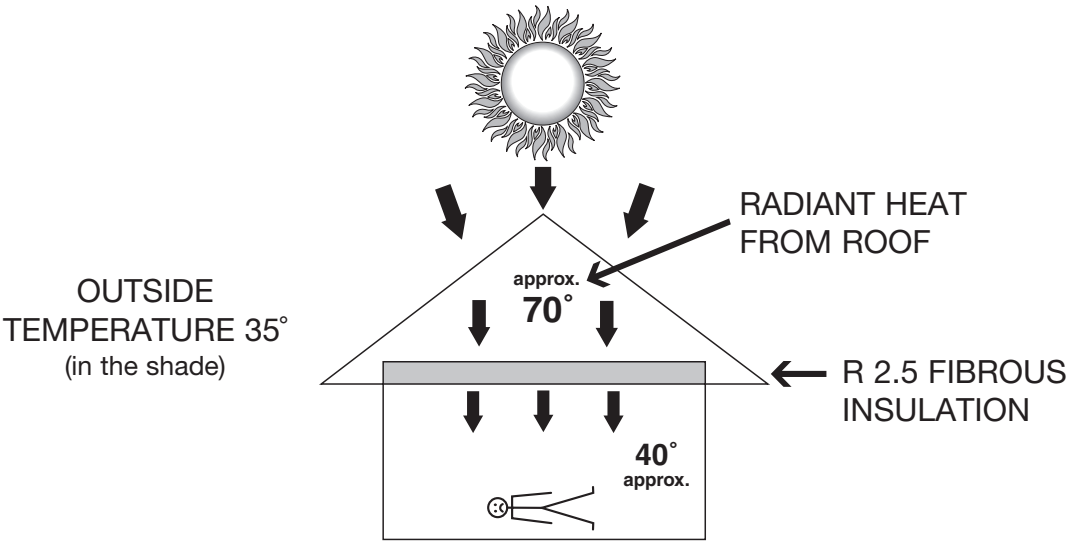


INSULATION EXAMPLES

	A	B	C	D	E	F	G	H	I
	ceiling joists, R3.0 BATT	FOIL BATT, R3.0 BATT	FOIL BATT, R1.5 BATT	1 FOIL BATT on ceiling, R1.5 BATT, multiple airspaces	FOIL BATT stapled to joists, R1.5 BATT, 50mm airspace	R1.5 BATT	**NO INSULATION**	1 FOIL BATT on ceiling battens, av. 50mm airspace	2 FOIL BATTS on ceiling battens, av. 50mm airspace
1 SUMMER HEAT FLOW	DOWN 25˚	DOWN 19˚	DOWN 23˚	DOWN 25˚	DOWN 20˚	DOWN 34˚	DOWN 55˚	DOWN 22˚	DOWN 20˚
2 WINTER HEAT FLOW	UP 27˚	UP 24˚	UP 28˚	UP 27˚	UP 25˚	UP 28˚	UP 40˚	UP 30˚	UP 25˚

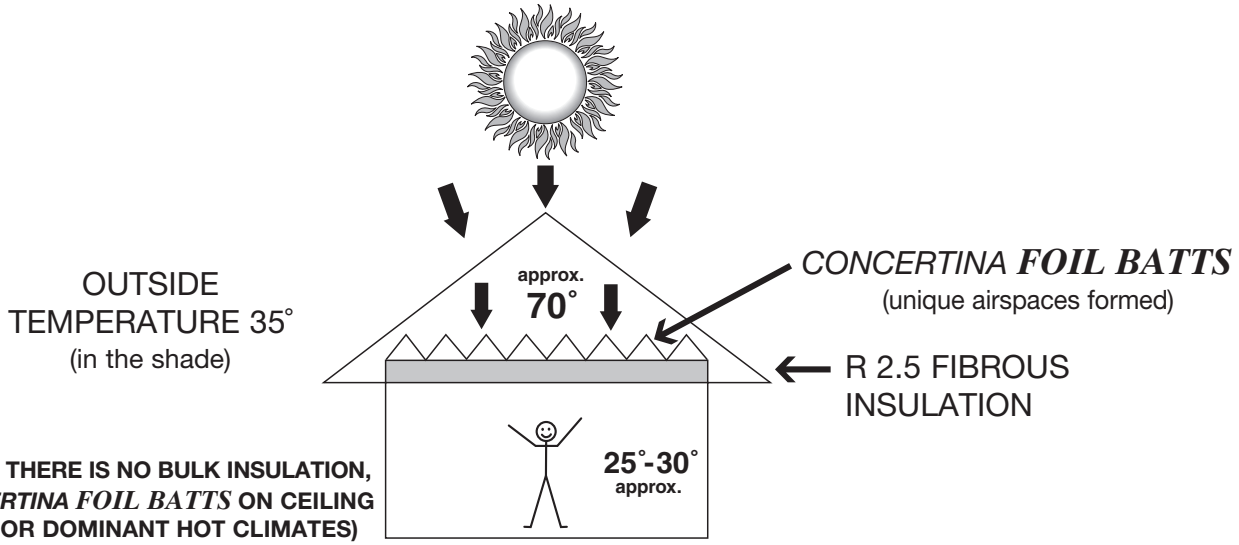
- Examples B and C will often be the most common ceiling insulation choice for locations experiencing dual cold winter / hot summer climates, requiring heating and cooling. Simple to install – no stapling.
- B & C demonstrate the summer benefit from laying FOIL BATTS on top of bulk insulation. The unique concertina shape creates two foil airspaces – foil laid flat has one upward facing airspace alone.
- Example D when resting on horizontal metal ceiling battens will give similar results to E and be easier to install – no stapling necessary. Cathedral or sloping ceilings are likely to require FOIL BATT stapling.
- To maintain the best winter performance for D/E, block off any heat escape from ceiling open sides, e.g. place a torn, half-thick R1.5 polyester batt along top plate – ie make FOIL BATT stop short of ceiling edge.
- The best summer results occur where a 50-100mm downward foil airspace clearance to the ceiling is formed (i.e. non-conductive). NB: D on battens, E, H, I. – FOIL BATT constantly emitting 3% of all summer radiant heat.
- Possible dust on top surface will accumulate in valleys of FOIL BATTS, but is of no importance. Example B tested with baby powder covering top surface 100% – ceiling temperature remained at 19° unchanged.
- Small triangular reflective airspaces having multiple points of contact are too complex for accurate R value calculation, nevertheless significant thermal benefits occur. Note: B, C, H, I.
- H & I well suited for hot climates – no stapling, lengthway overlapping (approx. 50mm), top batt criss-crossed at 90˚ and snipped to fit between ceiling joists. Timbers visible for walking.

DO YOU LIVE IN A "HOT" HOUSE?



SIMPLE SOLUTION

SIMPLY LAY *CONCERTINA* ***FOIL BATTS*** ON TOP OF THE FIBROUS INSULATION
WHICH PROTECTS IT FROM THE INTENSE RADIANT HEAT



NB: WHERE THERE IS NO BULK INSULATION, LAY *CONCERTINA FOIL BATTS* ON CEILING (MAINLY FOR DOMINANT HOT CLIMATES)

- ***FOIL BATTS*** **STOP** RADIANT HEAT, SIMILAR TO BEING UNDER THE SHADE OF A TREE
- ***FOIL BATTS*** WILL INCREASE SUMMER COMFORT BY LOWERING HEAT LOAD ON CEILING
- ***FOIL BATTS*** WILL EASE HEAT LOAD ON AIRCONDITIONING = LOWER FUEL BILLS
- ***FOIL BATTS*** ARE LOW IN COST –

* SUPPLY ONLY – DIY, SIMPLE TO INSTALL = $5.50 PER SQ.M + GST

WREN ***INDUSTRIES Pty. Ltd.***

A.B.N. 35 053 019 202

139 HERALD STREET
Cheltenham Vic 3192
Freecall: 1-800 066 002

Tel: (03) 9532 5855
Fax: (03) 9532 5854
Mob: 0417 310 523
Email: info@concertinafoilbatts.com

www.concertinafoilbatts.com

Member AFIA - Aluminium Foil Insulation Assoc. Inc (Vic. 1998)
www.afia.com.au

CONCERTINA
FOIL BATTS™

THE ***RADIANT HEAT*** BARRIER

THERMAL INSULATION FOR
CEILINGS • WALLS • FLOORS

Invented in 1992

PERFORATED ALUMINIUM FOIL™
RENSHADE
THE RADIANT HEAT BARRIER

WINDOWS • SKYLIGHTS • TRANSPARENT ROOFS

STOPS HEAT - STOPS GLARE - FILTERS LIGHT
THE REMARKABLE SEE-THROUGH INSULATION