The Green foil insulation company

- Warm in Winter, Cool in Summer
- Made from recycled Material
- Reduces Carbon Emissions
- Class A/ Class 1 Fire Rated
- Quick and easy to install
- Stops Drafting
Thermal performance, radiant barrier, vapour control and airtightness, all in one product......Why use anything else?

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Manufactured from recycled material using a patented process that eliminates the use of glues, adhesives and solvents. Low-E® has one of the lowest carbon footprints of any insulation, Low-E® is the only real ‘GREEN’ foil insulation on sale.

The original foil insulation! Low-E® is oldest foil insulation on sale in the UK and we have never changed the number of layers in our product. You only need 1!

<table>
<thead>
<tr>
<th>Product</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Market Launch</td>
<td>1993</td>
</tr>
<tr>
<td>Product Installed</td>
<td>700 Million Sq Ft</td>
</tr>
<tr>
<td>Core Layers</td>
<td>1 Recycled Closed Cell Foam</td>
</tr>
<tr>
<td>Recycled Content</td>
<td>Up to 40%</td>
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</table>

<table>
<thead>
<tr>
<th>Composition</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Facing Material</td>
<td>Foam Core</td>
</tr>
<tr>
<td>99.4% Pure Aluminium</td>
<td>Recycled Closed Cell Polyethylene</td>
</tr>
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</table>

<table>
<thead>
<tr>
<th>Roll Sizes</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Yield</td>
<td>Length</td>
</tr>
<tr>
<td>40m2</td>
<td>32m</td>
</tr>
<tr>
<td>5m2</td>
<td>4m</td>
</tr>
<tr>
<td>500 sq ft</td>
<td>125 ft</td>
</tr>
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</table>
It is unrealistic to expect a single product to address all of the problems posed by modern buildings. However by using Low-E® Insulation as part of a combination system you can meet high R-value requirements, address vapour control and stop drafting and airleakage into and out of your building. Low-E® Insulation can be used along side traditional insulations to increase thermal performance and reduce lifecycle running costs, by tackling issues which have been previously unaddressed by bulkier insulation products.

**Performance**

Increase thermal performance! Low-E® Insulation has a uniquely designed core that successfully tackles three forms of heat loss and provides impressive thermal performance. \( R= 2.08 \text{ m}^2 \text{ K}/\text{W} \).

Low-E® reflects 97% of radiant heat that comes in contact with its surface due to its natural low emissivity value.

BR443 Compliant Hot Box Test - *Includes 2 Airlayers adjacent to the foil surface, tested in 3 orientations - Heat Flow UP, DOWN & HORIZONTAL*.

**Airtightness**

It is now widely regarded that there is little point in increasing thermal performance without also addressing uncontrolled air movement into and out of your building. Low-E® stops drafting and airleakage, reducing heat loss and carbon emissions.

Low-E® has been tested to 600Pa and was found to have ZERO airleakage.

**Vapour Control**

To optimise performance in both new build and refurbished buildings, it is always advisable to install a vapour control layer within a modern building envelope. Low-E® EZ is a complete vapour control layer and will stop water vapour travelling from the internal living area of the building through the building structure.

Low-E® PERF is a breathable foil insulation that has been designed to allow vapour transmission. This is ideally suited for use on the external side of an insulation system or in an attic above existing insulation.
**Additional Testing**

<table>
<thead>
<tr>
<th>Property</th>
<th>Result</th>
</tr>
</thead>
<tbody>
<tr>
<td>Corrosivity</td>
<td>Pass</td>
</tr>
<tr>
<td>Delamination</td>
<td>Pass</td>
</tr>
<tr>
<td>Nail Tear</td>
<td>Pass</td>
</tr>
<tr>
<td>Tensile Strength</td>
<td>Pass</td>
</tr>
<tr>
<td>Crush &amp; Puncture Resistance</td>
<td>72 PSI / 96 PSI</td>
</tr>
<tr>
<td>Fungi Resistance</td>
<td>Pass</td>
</tr>
<tr>
<td>Sound Transmission Class</td>
<td>STC = 40</td>
</tr>
</tbody>
</table>

**Technical Information**

**Fire & Moisture Protection**

Low-E® products are unrivalled in fire performance. Low-E® has been Fire Tested in the UK, Australia and USA. Low-E can be used where other foil insulations cannot. 0 Smoke & 0 Flame Spread.

Low-E® is non-toxic and fungi resistant. It stops the infiltration of pollen and other allergens into your building, making Low-E® ideally suited for use in homes, offices, hospitals and schools.

**Performance**

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hot Box Test (mean value tested)</td>
<td>R-value = 2.08</td>
</tr>
<tr>
<td>Core Resistance</td>
<td>0.0376 WmK</td>
</tr>
<tr>
<td>Emissivity Value</td>
<td>0.03 - Reflects 97% of Radiant Heat</td>
</tr>
<tr>
<td>Emissivity Value After Ageing</td>
<td>0.06 - After 28 Days 70°C 100% Relative Humidity</td>
</tr>
<tr>
<td>Flame &amp; Smoke Spread</td>
<td>Class A/ Class 1</td>
</tr>
<tr>
<td>Air Permeability</td>
<td>Zero - m3 hr-1 m-2 @ 600 Pa</td>
</tr>
<tr>
<td>Water Vapour Transmission Low-E EZ</td>
<td>&gt;2000 MNsg</td>
</tr>
<tr>
<td>Water Vapour Transmission Low-E PERF</td>
<td>&gt;0.2 gm/MN</td>
</tr>
</tbody>
</table>

**Technical Information**
See why Low-E® is fast becoming the preferred foil insulation for builders, designers and manufacturers around the world.

**Low-E® Combination System**

- Saves money
- Saves space
- Only 5.5mm thick
- Requires 22mm battens for 20mm airspace
- Save 50% install time
- No dragging on screws
- Lightweight & quick to cut
- Class A/ Class 1 Fire Rating
- Core is unaffected by moisture

**Multi-Foil Combination System**

- More expensive per m²
- Occupies more rafter space
- Often over 30mm thick
- Requires 47mm battens for 20mm airspace
- At least double the install time
- Drags on screws
- Difficult to cut and can collapse in cavity
- Not fire tested
- Core can absorb moisture
There is no safety equipment or protective clothing required to handle or install Low-E® Insulation. A staple gun, utility knife and a roll of Low-E® Seam Tape are the only items required for general installation.

Low-E® can be installed with either side facing out.

Low-E® can be nailed or screwed through to fix in place. Low-E® will not drag on screws and will self-seal around any fixings that puncture it during installation.
Airspaces form an important part of the system R-value, when using Low-E®. We always recommend a minimum airspace be maintained when installing Low-E.

- 13mm - Roof Application
- 16mm - Wall Application
- 18mm - Floor Application

Airspaces can be formed in numerous ways but we find a counter batten is the easiest way in general construction.

Alternatively Low-E® can be fitted loose and draped into the adjacent cavity to create an airspace.

Low-E® can also be recessed into an opening and stapled into place to create an airspace.

There are numerous other ways of creating airspaces with Low-E®. If you have an application for Low-E® and want to find a suitable way of fitting it please contact us for details.

Precautions

Aluminium is an electrical conductor. Please use caution when working around electrical sources, including overhead power lines.

Low-E® should be stored on a flat dry surface in its bag, out of direct sunlight, until it is ready for installation.

Never interfere with the designed ventilation of the building when installing Low-E® Insulation.

Although Low-E® Insulation products have an excellent fire rating, it is recommended that they should not be exposed to open flames or ignition sources of sufficient intensity during shipment, storage or installation. 50mm of clearance should be left around heat producing flues or light fittings.

Install any additional insulation in accordance with the manufacturers’ guidelines. Always build in accordance with applicable standards.

When using Low-E® outdoors be aware of glare from the sun, protect your eyes and skin.

Aluminium surfaces should not be installed in direct contact with uncured concrete or any uncoated raw metals.

Do not walk on Low-E® when it is cut before installation.

If you have any concerns about condensation risk, please contact your local building control for advice.
Always tape Low-E® when surfaces are clean and dry.

Low-E should be taped at junctions with walls, windows and doors.

When joining or replacing sections of Low-E®, Low-E® Seam Tape should always be used.

All seams that are exposed to conditioned spaces must be taped with Low-E® Seam Tape.

Use a utility knife or a pair of scissors to cut the Low-E® Seam Tape. Tearing the tape may stretch it.

Overlapping

Simply overlap the adjoining rolls by 50mm-100mm and seal using Low-E® Seam Tape.

When you are overlapping rolls, it is important to ensure the overlap does not allow water to get into the structural space.

Low-E® EZ SEAL

The adhesive strip that runs along one side of the roll will be used to bond to the next length. Ensure the rolls are running level with each other.

Fold back the insulated tab on the edge of the of Low-E® EZ and butt it together with the tab on the next roll.

Peel off the release paper and press the two insulated tabs tightly together. For best appearance and easiest installation, it is advisable to complete this approximately one metre at a time.

Staple the seam every 200-300mm. If the EZ strip is not sticking because of moisture in the air, staple every 100-200mm and seal using Low-E® Seam Tape.

To maintain Class A/ Class 1 Fire Rating, all seams that are left exposed to conditioned spaces MUST be sealed using Low-E® Seam Tape.
Ensure that the area is clean and dry. Place the two pieces of Low-E® you wish to join on a clean, flat surface and butt them together. Seal the join using Low-E® Seam Tape. Turn the insulation over and repeat on the other side.

In Situ

Overlap the new run of Low-E® with the run which is already in place (over the closest support batten) and start fitting the new run. Once the new run is secured, cut along the centre of the support batten where the two runs overlap and remove the waste.

Place double-sided tape on the face of the support batten and remove the paper backing from the double sided tape. Secure the runs back against the support batten.

Apply Low-E® Seam Tape to the face of the join using a squeegee by firmly pressing it down on the tape while running it the length of the join. The Low-E® Seam Tape will blend in perfectly with the insulation.

Repairs

If it happens (and occasionally it does) that material gets damaged on site after it has been installed. Don’t worry, just cut a replacement piece of Low-E® slightly wider than the spacing between the nearest support battens.

Place the replacement piece over the damged area and cut along the centre of the two nearest support battens. Remove the excess material and the damaged piece of Low-E®.

Place double-sided tape on both of support battens and remove the paper backing from the double sided tape. Put the replacement piece into place. Apply Low-E® Seam Tape to the face of the seams by firmly pressing it down on the tape while running the length of the join.

Once done the Low-E® Seam Tape will blend in perfectly with the insulation.
Low-E® can be installed above and or below rafters. It is always recommended to use Low-E® EZ (Vapour Control Layer) on the internal side of a structure and Low-E® PERF (breathable) on the external side.

Roll out Low-E® either parallel or perpendicular to the rafters. Alternatively you can cut Low-E® to length and then place it on the roof. Staple Low-E® in place on the roof as you go.

Always cut Low-E® 50-100mm longer than required to ensure all exposed ends of Low-E® can be folded back to stop air ingress. Make sure the material is running square with the roof.

You can use double sided tape on the rafters to help hold Low-E® in place when you are starting the run. OR secure the start of the run in place using a C-clamp and a block of wood.

Once the run is complete, start the next run and join the runs together as described in the ‘Joining Section’.

Follow the sections for above and below rafters on the following pages.
The rafters should be counter battened, the roof membrane installed, and the roof finished to requirements and applicable standards.

If a roofing deck or sarking board is being installed, you can allow Low-E® to sag between the rafters to create an airspace between Low-E® and the board.

If you decide to install Low-E® EZ (vapour barrier) on the external side of the roof and it is required by your local regulations to install a vapour barrier below the rafters (internally), you can use:
1) A second layer of Low-E®
2) A foil-backed plaster board with the joints between the boards well sealed
3) A 500 gauge polythene sheet

Finish Low-E® up to the ridge and join rolls using Low-E® Seam Tape.

Finish Low-E® down to the facia board and be sure to stop air ingress.

Finish Low-E® tight to the gable walls.
Roofing - Below Rafter

Finish Low-E® up to the ridge and join rolls using Low-E® Seam Tape.

Once installed the rafters should be counter battened to create a service void and the ceiling finished as per requirements.

Ridge, Eaves & Gable

Finish Low-E® down to the wall plate and staple securely in place.

Always ensure care is taken to stop air ingress around the edges of the roof.
Roofing - Barn Conversions

**Fully Exposed Rafter**

- Roof Covering
- Low-E® PERF
- Secondary Insulation
- Exposed Rafter

**Partially Exposed Rafter**

- Roof Covering
- Secondary Insulation
- Low-E® EZ
- Exposed Rafter

Roofing - Dwarf Walls

- Secondary Insulation
- Low-E® EZ
- Internal Wall Covering
There are a number of ways of installing Low-E® in an attic to upgrade your insulation system, stop drafting and air leakage.

When installed above a secondary insulation, it is always recommended that you use Low-E® PERF, our breathable foil insulation.

This allows vapour transmission to pass through Low-E® and stops the vapour from being left behind and absorbed by a fibrous insulation.
Roofing - Attic Upgrades

Low-E® PERF under Rafter

In this example Low-E® PERF has been installed on the underside of the rafters where a double layer of traditional insulation has already been installed between the joists. Adding Low-E® Insulation in this application will upgrade the insulation system and reduce drafting, which could currently account for up to 40% of your heat loss.

Ensure Low-E® is fitted tight to the edge of the roof to reduce air ingress.

Low-E® PERF over Joists

In this example Low-E® PERF has been installed over the joists where a layer of traditional insulation has already been installed. Adding Low-E® Insulation in this application will upgrade the insulation system and reduce drafting, which could currently account for up to 40% of your heat loss.

Ensure Low-E® is fitted tight to the edge of the roof to reduce air ingress.
Low-E® can be installed internally or externally on a timber frame. It is always recommended that you use Low-E® EZ (Vapour Control Layer) on the internal side and Low-E® PERF (breathable) on the external side.

Unrolling and Fixing

Low-E® should be rolled out across the face of the wall. It can be rolled out either parallel with the floor or vertically. Alternatively you can cut Low-E® to length and then place it against the wall for fixing. Staple Low-E® in place as you move along the frame.

Always cut Low-E® 50-100mm longer than required at all ends, to ensure all exposed ends of Low-E® can be folded to stop air ingress. Make sure the material is running square with the wall.

You can use double sided tape on the frame to hold Low-E® in place when you are starting the run. Or secure the start of the run in place using a C-clamp and a block of wood.

Once the run is complete go back to start and roll the out the next length as before. Join runs or rolls together as described in the ‘Joining Section’.
Counter batten the frame to create an airspace between Low-E® and the finished wall.

Finish the wall as required.

Alternatively
Low-E® also can be loosely fitted, to allow it to be dished back into a cavity.

External Fitting

It is recommend that Low-E® PERF is used in this application to allow for vapour transmission through the wall structure.

Install Low-E® over the entire wall and cut out openings for windows and doors once the installation is completed.

Finish flashings and exterior as per requirements.

SIP Panels

Low-E® can be installed with SIP panels to increase thermal performance, provide airtightness and to create a service void on the internal side of the building.

Install as stated above and finish wall as per requirements.
There is always a compromise between upgrading insulation and loss of internal space in a building. Below are 3 examples of different ways of installing Low-E® on 3 different masonry walls.

**Double Batten**

- Install battens on masonry walls to carry the Low-E®. Fit Low-E® to the battened frame as described above.
- Install counter battens over the Low-E® to create an airspace between Low-E® and the finished wall.
- Finish the internal wall as per requirements.

**Space Saving**

Low-E® PERF can be installed directly onto the block wall with one airspace. We find it is easier to install Low-E® vertically from ceiling to floor in this application. Low-E® is very lightweight and can easily be tacked to hold it in place.
- Secure permanently by installing counter battens over the Low-E®. This creates an airspace between Low-E® and the finished wall. A plasterboard or insulated plasterboard can be installed for extra performance.

**Maximum Performance**

- Install battening system and insulation between the battens as per requirements. Low-E® can then be fixed to the face of this frame.
- Install counter battens over the Low-E®, to create an airspace between Low-E® and the finished wall.
Walls - Junctions & Openings

Junctions

Finish Low-E® tight up to the ceiling and down to the floor. Inspect finished work to ensure it has been installed as airtight as possible.

Openings

Cut out carefully around doors, windows and other openings, so that it neatly abuts to the frame.

Doors & Windows

Openings can be cut out in place or the run can be stopped before the opening and started again on the other side.

Ensure you leave enough material to wrap around openings and junctions to stop any air ingress.

Once you have finished, inspect the finished work to insure it has been installed as airtight as possible.
**Floors**

Low-E® SlabShield is perfectly suited to working with radiant heating systems. The aluminium core is proven to effectively reflect radiant heat while the closed cell foam protects the aluminium. The foam also provides an effective thermal break between the warm slab and the cold subfloor.

Low-E® can be easily be installed on ground floors or suspended floors.

Low-E® can be installed over joists and either, allowed to sag between the joists where it should be fixed with staples into the side of the joists. This application can be used with suspended radiant heating systems.

If installing on top of a solid concrete floor either a single or double batten system can be used. Keep Low-E® taut as you unroll it. Counter batten over the Low-E® to create an airspace between Low-E® and the finished floor. Fit the finished floor as per requirements.
Standard speed fixings can be used when installing Low-E® in steel framing. Low-E® has been shown to reduce energy consumption and even reduce lighting bills by up to 20%.

Low-E® is used on large distribution centres where it increases thermal performance and reduces lifecycle running costs.

Used internally on large framing walls, Low-E® will stop heat transfer between rooms where separate climate controls are required.

Light Steel Buildings

Low-E® is easily installed on light steel framing without occupying any additional space. Low-E® will increase efficiency and stop drafting and airleakage.
Suspened Ceilings

Low-E® can be cut into squares and fixed to the back of ceiling tiles. Alternatively our Low-E® TAB (400mm or 600mm wide) can be unrolled and pulled along a full length of ceiling. Installing Low-E® above suspended ceilings has shown energy savings of between 10-25%.

Ice-Skating Rinks

As you would guess from its name, Low-E® Insulation is ideally suited for use in low emissivity ceilings. Low-E® will be your first and last choice for compliance with these ceiling requirements.

Agricultural Buildings

Used in agricultural buildings, Low-E® is the perfect, easy to fit product to complete outhouses and storage buildings.
Concrete Floors

At only 11mm thick our Low-E® SlabShield product has been especially designed for use under concrete. Low-E® SlabShield comprises of two layers of our closed cell foam with an aluminium core. The foam protects the aluminium from coming in contact with the uncured concrete while also providing a thermal break between the warm slab and cold subfloor.

Duct Wrap

Low-E® can be used as a pipe wrap and duct wrap. By using foam spacers to create an airspace between the ducting and the Low-E® you can increase the efficiency of your HVAC system.

House Wrap

Low-E® can be used as HouseWrap Insulation to increase thermal performance while still allowing interstitial condensation to move through the structure of a building.
Converting your garden shed into an office, studio or anything else?

Low-E® is an effective insulation. It's quick to install and a cost efficient way to start your conversion.

Want to eliminate drafting through your garage door? Low-E® can be fitted by anyone and is a quick and simple way to finish off any garage door.

Simple and easy to fit. Using Low-E® Insulation to wrap your hot water cylinder can reduce your water heat costs by 15%.
**Defective Material**

The following criteria may be considered a defect: (1.) 25mm wide or more of foil delamination on the edges for more than 4.5m of the roll. (2.) More than 25mm of core showing on 6m or more of a roll. (3.) Large areas (more than 1 square foot) of delaminated foil.

**Corrective Instructions**

Occasionally there may be imperfections in product that may affect appearance but not performance. In the event this is encountered, the following solutions are advised;

1)- If there is core showing on one side, either tape the seam on that side when installed or install product with the core side facing in.

2)- If there is an edge that is delaminated, either tape the seam on that side when installed or install product with delaminated edge in.

3)- If there are areas that have a delamination that cannot be installed without correcting this defect, the following may be done with an iron: Set the iron to half to three quarters of the temperature setting. Make a small slit with a razor knife in the center of the delamination and carefully, with light pressure, iron the foil towards the slit, allowing trapped air to escape. When finished, cover the slit with a small piece of Low-E® Seam tape.

**Returns Policy**

1)- It is our opinion that our Distributors should handle customer problems directly and Low-E UK Ltd will in turn issue a credit or replace materials to the Distributor. The Distributor must make available a copy of the product label or the information on the label [ lot#, initials, product description], samples of the defect, or the roll of material. Upon inspection of the defect, we will credit or replace defective material at our discretion.

If a section of a roll is bad, remove the bad area and use the rest of the roll. Retain the bad section and label information for credit. If the label is not available, return the bad section.

2)- All labels on the product must be saved for verification. If label is not sent back with a completed complaint form, the complaint will not be acknowledged. If everything is in order on the complaint form and we request the return of the roll, we will pay the shipping, however, no material is to be returned without prior approval. No credit will be issued for material returned directly.

3)- If the customer elects to keep all the product that is considered seconds, and the complaint forms and labels are sent back, Low-E UK Ltd will credit the customer for the difference in first quality and second quality pricing.

4)- If the product is shipped out of the UK, the customer is totally responsible for all replacement costs and shipping charges.