



THIN INTERNAL WALL INSULATION AND DAMP CONTROL (TIWI)



THERMAL INTERNAL WALL ECO-SYSTEM



A new and innovative patented textile based thermal system for wall insulation & damp control, for dry and **warm** walls.



Designed to save energy and keep walls dry.

ISO-THERM is an ultra thin (+/-4mm) specially woven polyester based material, which is both unique and patented.

Available in rolls of 1 metre wide, it is flexible and lightweight and will accommodate a multitude of wall finishes.

Due to its ease of use and flexibility it can be cut around light switches/sockets/radiator brackets and the like, and is minimally invasive in its installation.

Very often, door architraves and skirtings can remain in place, and because of its malleability it fits around and into window reveals with ease.

It is fixed in place with our unique **ISO-THERM** adhesive, normally trowelled onto the wall to a thickness of circa 5mm, and with the **ISO-THERM** affixed and rolled into the adhesive, the overall finished depth after a direct plaster skim coat is approximately 10mm.

ISO-THERM is vapour permeable, but waterproof, thereby resisting any lateral damp transference, and stopping the subsequent natural surface nitrates and chlorides forming as an efflorescent salt.

Because of its high thermal benefit, and the withholding of any natural damp transference it is highly resistant to any formation of surface mould.

THERMAL

INTERNAL WALL ECO-SYSTEM

ISO-THERM

The sheer speed of application, and the ability to apply direct to sound plastered walls, means that large areas can be applied in a very short space of time, and save for the plaster skim coat and painting, both residential and commercial properties suffering from cold and damp/mouldy walls can be improved substantially with the minimum of disruption.

We believe this to be the most exciting and innovative product for improving internal cold and damp walls in a generation.



FOR MORE INFORMATION VISIT www.wykamol.com

ENERGY PERFORMANCE

STUDY BY LEEDS SUSTAINABILITY INSTITUTE (LSI)



LEEDS
BECKETT
UNIVERSITY

Why do we need thin internal wall insulation TIWI?

Thin Internal Wall Insulation (TIWI) can provide significant energy savings for almost 8 million uninsulated solid wall homes in the UK. The current solid wall insulation (SWI) market, including retrofits undertaken via ECO, has been focused on installing thicker internal wall insulation (IWI) to achieve U values of 0.3 W/m²K. However, this has resulted in low market penetration with only around 7% of ECO retrofits including SWI, meaning IWI accounts for less than 1% of ECO measures. In addition, conventional IWI has been found, in some instances, to be disruptive to householders and increases the risk of moisture problems manifesting in homes. TIWI may provide a solution to this, if it is easier to install, cheaper, lower risk and still reduces fuel bills for solid wall homes.

Evaluating the performance of tiwi

This report presents the preliminary findings from before and after building performance evaluation (BPE) field trials undertaken to measure the impact of 6 TIWI and 1 conventional IWI retrofits. Their impact on thermal bridging and hygrothermal models identified how they affected moisture risk. Dynamic simulation models predicted the energy demand reductions to evaluate potential carbon and fuel bill savings. Co-heating test measured the reduction in the heat transfer coefficient (HTC) measured in W/K, which describes the holistic impact on the home's heating demand. In addition, blower door tests and heat flux measurements quantified the difference that the retrofits had on infiltration (uncontrolled air leakage) and fabric heat loss, i.e. wall U value measured in

W/m²K, respectively. Appraisal of the installation costs and how the TIWI products could overcome installation barriers was undertaken, supported by surveys in 100 homes to identify insulation and dwelling characteristics that affected costs or risks, such as requirements to replace plumbing, boilers & radiators, apply decoration or repair damp walls.

Findings

TIWI provides substantial benefits for uninsulated solid wall dwellings at lower cost and reduced risk of condensation, although thicker insulation will provide further energy savings. However, TIWI cannot completely remove moisture risk and it is essential that both IWI and TIWI are fitted appropriately to walls in good repair.

Conclusion

TIWI could contribute to Government retrofit policies to improve the EPC score of dwellings, provide greater market penetration and reduce the likelihood of retrofits creating moisture risks in homes. The requirement to improve solid wall U values to 0.3 W/m²K in current retrofit standards may be a deterrent and can cause confusion when applying the regulations for builders and building control officers. Cavity wall retrofits can also struggle to improve walls to this U value, and as such cavity wall retrofits are allowed to achieve a U value of 0.55 W/m²K. A similar leniency in the approach to U values for solid wall retrofits may increase their uptake, resulting in benefits to homeowners and a greater reduction in national energy consumption.

50%



Half of homes surveyed needed remedial work before retrofit

70%



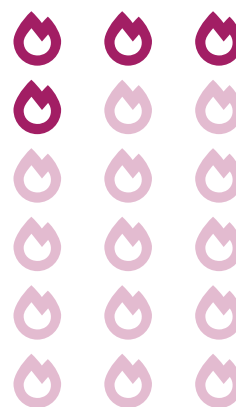
TIWI is on average 30% cheaper to install than IWI

3%



TIWI can reduce household GHG emissions by up to 3.3%

19%



TIWI can reduce a dwelling's heat transfer coefficient by between 13% and 19%

TECHNICAL DATA



ISO-THERM

DESCRIPTION

ISOTHERM is a thermal insulator made from 100% polyester non-woven fabric coated with a flame-retardant acrylic compound, 100% water-based.

Diagram Key

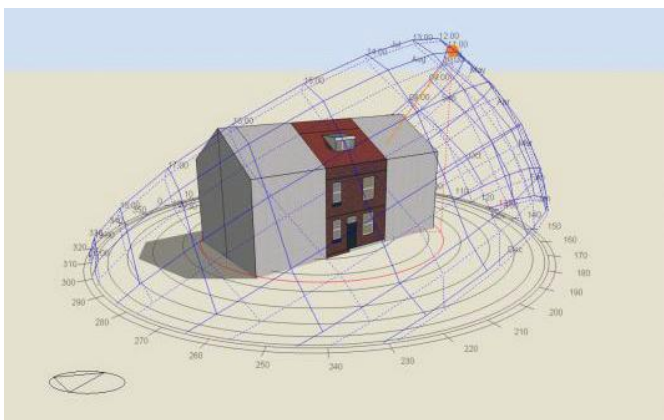
1. Wall
2. Render - Plaster Finish
3. ISO-Therm Adhesive
4. Liner ISO-THERM
5. Finishing - Plaster Skim Coat
6. Concrete Floor
7. Ground

ISO-THERM ADHESIVE

DESCRIPTION

A mineral adhesive, ready for use. Composed of stabilised potassium silicate, siliceous aggregates, quartz sand with specific granulometry and other additives. It is permeable and water repellent.

ISO-THERM DIAGRAM



Solid brick wall mid terrace

Wall U-value
(BS EN ISO 6946):

Baseline = 1.898 W/m² · K

Retrofit = 1.488 W/m² · K

% Improvement = 21.60%

Part of the Wykamol energy saving product range, “Triple lock heat saver” technology when used in conjunction with ThermalDry and Dryseal



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