

## Hybris



### General information

**HYBRIS** is a reflective insulation product based on a honeycomb structure of shaped polyethylene foam layers and low emissivity films. **HYBRIS** is generally used for roof, wall and suspended timber floor applications and is usually installed between structural members such as timber/steel frames.

**HYBRIS** is installed with the embossed copper-coloured film facing the inside (warm side) of the building.

**HYBRIS** is flexible and accurately fits all widths;

'Friction fit' by pushing the **HYBRIS** into the opening ensuring a good fit between two pieces of insulation and joints with timber/steel. For extra support staple **HYBRIS** top and bottom to timbers, or tape to steel frame and tape adjacent **HYBRIS** panels with Actis tape.

**HYBRIS** can be combined with other **ACTIS** Hybrid products or with traditional insulation products such as foam board or insulated plasterboard. It can be in direct contact with building components but the thermal efficiency will be improved with air gaps associated with the product.

The product should be installed in association with a suitable breather membrane or roofing felt. An independent and continuous vapour barrier is recommended.

**HYBRIS** is available in 1200mm x 1145mm wide panels and in a range of thicknesses from 50mm to 205mm. One panel, prior to cutting for installation, is sufficient to fill the space between timber studs 2.4 metres high.

<b>HYBRIS</b> thickness	Coverage per pack
60MM	8.24m <sup>2</sup> (6 BALES PER PACK)
50MM, 75MM, 90MM, 105MM	5.49m <sup>2</sup> (4 BALES PER PACK)
125MM, 140MM, 155MM, 170MM, 185MM, 205MM	2.74m <sup>2</sup> (2 BALES PER PACK)

### Tools / Accessories

Saw, Stapler, tape.



### Precautions

**HYBRIS** must not be in contact with a chimney, fire or any source of ignition. The product must be isolated from a chimney with a fire resistant material. The product is not intended to provide an internal finish and should be underlined with a suitable building board.

**HYBRIS** is a non-load bearing product. It will resist normal loads associated with installation and use, although cannot be walked on.

# HYBRIS STEP BY STEP INSTALLATION

## Measuring

- 1 Before removing from the packaging, tap the panels down to ensure they are level before cutting. Measure between the timbers and mark the **HYBRIS** pack approximately 5-10mm wider than the gap between the timbers.



## Cutting

- 2 Cut **HYBRIS** approximately 5-10mm wider than the gap between timbers. Keep **HYBRIS** in its packaging whilst cutting and ensure an accurate cut. **HYBRIS** can be easily cut with an insulation saw, standard hand saw or an electric alligator saw if preferred.

The polyethylene packaging is fully recyclable and can be quickly removed using an **ACTIS cutter**. Alternatively, a knife could be used, but care should be taken not to damage product.



## Pulling

- 3 Hold both ends of the embossed copper-coloured face and pull the product open. Turn **HYBRIS** over and hold the silver-coloured face and repeat the pulling action.



# HYBRIS STEP BY STEP INSTALLATION

## Installing Hybris

### 4 Installation in a timber frame wall

Always install **HYBRIS** with the embossed copper-coloured film facing the inside (warm side) of the building.

Open **HYBRIS** to the length of 1200mm and 'friction fit' by installing the product into the opening between the studs and up against the OSB, ensuring a good fit between the insulation and timber and taking care that the insulation thickness is maintained. 'Friction fit' the next panel as before and ensure there is a good fit between the two pieces of insulation and to any joints with timber.

For extra support, staple **HYBRIS** through the embossed copper-coloured film and one foam layer to horizontal timbers (e.g. top and bottom rail). Tape adjacent **HYBRIS** panels with **Actis tape**. Repeat between all studs.



### 5 Installation in a pitched roof

Always install **HYBRIS** with the embossed copper-coloured film facing the inside (warm side) of the building.

Open **HYBRIS** to the length of 1200mm and 'friction fit' by installing the product into the opening between the rafters, ensuring a good fit between the insulation and timber and taking care that the insulation thickness is maintained.

'Friction fit' the next panel as before and ensure there is a good fit between the two pieces of insulation and to any joints with timber. Tape adjacent **HYBRIS** panels with **Actis tape**.

For extra support, staple **HYBRIS** through the embossed copper-coloured film and one foam layer to horizontal timbers (e.g. ridge beam and wall plate). Repeat between all rafters.



# SPECIFIC DETAILS

## Trimming

If **HYBRIS** needs to be trimmed, the horizontal direction of internal structure makes it easy to cut accurately. The length of **HYBRIS** needs to be approximately 20mm longer than the distance between horizontal timbers.



## Pipes and ducting

Penetration of product by services should be kept to a minimum. Make a cross-shaped cut in the copper-coloured face with a sharp knife, matching the diameter of the pipe. Put the pipe through **HYBRIS** and install the panel between the studs. Cut several strips of **ACTIS tape** and stick around the pipe overlapping each piece by approximately 1cm. If required, stick further pieces of tape on top of the first layer of tape, covering the joins.

**Note:** **HYBRIS** must not be in contact with heat sources above 80°C.



For further advice from ACTIS call the technical department on **01249 462 888** or email [solutions@insulation-actis.com](mailto:solutions@insulation-actis.com)

## Electric wiring

Penetration of product by services should be kept to a minimum. Create a hole through the **HYBRIS** panel from the copper-coloured face, using a sharp tool (e.g. screwdriver or sharp general-use knife). Thread the wire through the hole and place the **HYBRIS** panel between the studs. Cut two pieces of tape approximately 10cm in length. Stick the tape either side of the protruding wire, attaching the wire to the product.

Fitting sockets, switches, light fixtures and ducting should not deteriorate the insulation and joints must be airtight by sealing with **ACTIS tape**.



## HYBRIS behind timbers (e.g. in a corner)

**HYBRIS** is very easy to install behind timbers due to its flexible structure. Simply push into place ensuring a good all-round fit.



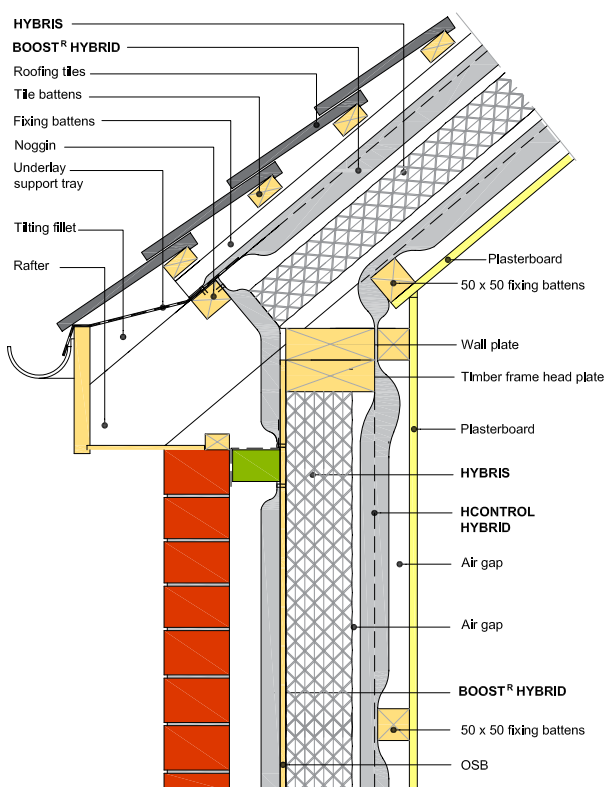
## Puncture damages

Where damage has occurred, apply a good-sized patch of insulation over the hole ensuring all edges of the patch are completely sealed with tape. Alternatively, for small puncture damage of less than 25mm, **ACTIS tape** may be used.

# SPECIFIC CONFIGURATIONS

## Continuity of insulation and airtightness

Building Regulations state that "Insulation should be reasonably continuous over the whole building envelope... Reduction in thermal performance can occur where the air barrier and the insulation layer are not continuous and the cavity between them is subject to air movement." Attention to detail is therefore paramount from technical design through to construction stage, to address any shortcomings that may lead to the building not performing as predicted. Please see below typical timber frame wall build-up with **HYBRIS** insulation, further construction details are available at [www.insulation-actis.com](http://www.insulation-actis.com).



## Thermal bridging

A thermal bridge is where a penetration through the insulation layer occurs, and heat is transferred through a non-insulating material, reducing thermal performance and potentially contributing to condensation and extra energy consumption. Thermal bridging can usually be reduced by ensuring:

- tightly fitting insulation layers without gaps
- perfectly sealed joints between adjacent insulation layers
- continuous insulation and airtightness at construction junctions

The type of thermal bridging that occurs at construction junctions is defined as linear thermal bridging (psi-value ( $\psi$ )). Please contact Actis Technical Department for standard construction details and related psi-values.

## Ducting & Service voids

Reflective insulation products are preferably installed with air cavities. This creates an integrated service void, undisturbed by follow up trades, which favours the continuity of the insulation product within the building envelope and quality on-site. If penetration of product is necessary, this should not deteriorate the insulation and joints must be sealed with **ACTIS tape** to achieve good airtightness.

**Note:** Continuity of insulation must not compromise compartmentation (fire safety). Please also see chapter 'Additional & Safety' information.

## Condensation risk management

Condensation is most likely to occur when warm moisture laden air is able to pass from the warm to the cold side of the insulation and is then prevented from dissipating to the external ambience. Please consider the following to prevent condensation risk and also refer to Building Regulations Approved Document C and BS 5250:

### Ventilation:

Excess of water vapour in the internal ambient air increases the risk of condensation. This can be avoided by adequately ventilating internal spaces using natural or mechanical ventilation. Furthermore, insulated building zones are to be maintained at constant internal ambient temperature of at least 12°C.

### Vapour control layer

Vapour control layers are recommended because they limit the flow of warm air and water vapour through the structure to the cold side and provide airtightness.

It is recommended to install an independent and continuous vapour control layer with a significantly greater vapour resistance than any products installed beyond it. Joints must be well sealed with appropriate tape to guarantee airtightness.

**Note:** **HYBRIS** can act as a vapour control layer without the need for an independent vcl. This application requires taping of all joints with appropriate **ACTIS tape**.

## Breather membrane

Construction build-ups are to be covered on the external with a membrane to prevent water ingress into the structure. High vapour resistant membranes can be used, but require ventilation on the warm side. This ventilation is not necessary when breather membranes are used as they allow for water vapour to disperse.

In order to avoid a build-up of moisture in the batten space between breather membrane and roof covering, it is good practice to ensure adequate air movement through this void (under-tile ventilation). This will allow moist air to dissipate into the atmosphere.

Construction build-ups should be assessed in accordance with BS 5250 – Code of practice for control of condensation in buildings, In order to show that solutions are free from condensation risk. A condensation risk analysis in accordance with EN 13788 (Glaser method) is recommended for most build-ups.

Actis offer a free calculation service for U-value and Condensation Risk Analysis. Please contact the Technical Department.

# ADDITIONAL INFORMATION

**IMPORTANT:** in addition to the specific recommendations given by ACTIS below, your ACTIS products should be installed and used in compliance with (1) good building practice, (2) the most recent editions of any applicable regulations or relevant guidance and (3) any British or European Standards relating to the installation and use of insulation/membrane products, particularly in relation to safety precautions.

## Fire precautions

ACTIS multifoil products are not fire rated and therefore have been classified as NPD (no performance declared). HYBRIS has been classified Euroclass F.

ACTIS insulation products must not be exposed to a direct heat source, sparks or a naked flame. ACTIS products will melt and shrink away from a heat source, but will burn in the presence of a naked flame.

Keep blow torches well away from ACTIS products, even when using a flame guard or other protective device, and make sure that hot debris and sparks do not make contact with the products.

## Chimneys, flues, heat exchangers and other sources of heat

Never use ACTIS insulation products to insulate a chimney flue, heat exchanger or any other heat source above 80°C. Use a Euroclass A1 non-combustible insulation in compliance with British or European Standards. ACTIS advise leaving a minimum gap of 200 mm between the insulation and chimneys, flues, heat exchangers and all other sources of heat above 80°C.

## Fireproof finishes

As recommended by current regulatory guidance, ACTIS insulation products should always be covered with a fireproof lining board such as plasterboard (see, for example, the fire safety provisions contained in Approved Document B, which provides practical guidance on the fire safety requirements of the Building Regulations in England and Wales; or refer to the relevant provisions in Scotland and Northern Ireland, as amended from time to time).

## Compartmentation

The spread of fire within a building can be restricted by sub-dividing it into segments separated from one another by walls and / or floors of fire resisting construction.

To ensure that compartment walls achieve the requisite levels of fire resistance, the insulation should not be carried over junctions with such walls (again, please refer to the fire safety provisions contained in Approved Document B noted above, or to any applicable provisions in Scotland and Northern Ireland, as amended from time to time).

Fire stops are used to ensure that fire resistance requirements are met – they are typically based on non-combustible materials. Cavity barriers are used within air cavities of cladding systems to prevent the spread of smoke and fire. Cavity barriers are usually required at eaves, around openings and at elements between compartments. Please follow Building Regulations guidance regarding positioning of cavity barriers.

For more detailed information about reaction to fire of ACTIS products and fire resistance of systems, please contact ACTIS Technical Department..

## Electrical installations

Follow requirements for electrical installations as set out in Building Regulations, NHBC and other relevant standards.

The use of down-lighters, recess lighting or any other source of localised heat (transformers, etc.) in direct contact with ACTIS insulation products is prohibited. However, if the use of recess lighting in conjunction with ACTIS insulation products is desired, specific precautions must be taken and ACTIS recommend the provision of a 'safety cavity' by creating a space between the insulation and the heat source in line with NHBC guidance. This "safety cavity" guarantees the installation of e.g. down-lighters without the risk of contact with the insulation. The minimum height of this "safety cavity" depends on the safety distance recommended by the down-light manufacturer.

In all cases advice should be sought from the relevant Building Control officer who will give guidance on a case by case basis.

# ADDITIONAL INFORMATION

## Safety

Security precautions against e.g. falling from height are necessary.

During installation extra care should be taken when working in wet conditions due to the increased risk of slipping.

ACTIS products are lightweight and non-loadbearing. They will resist normal loads associated with installation and use, although cannot be walked on.

Check individual company policy regarding the distribution and type of PPE required e.g. Hi-Viz tops, hard hats, safety footwear, gloves etc.

Remember that ACTIS products are highly reflective. Where the products are being installed in bright or sunny weather conditions, appropriate eyewear should be worn (such as sunglasses conforming to the most stringent requirements of BS EN 172, as amended from time to time) and protect against sunburn.

All ACTIS products have safety information data sheets (COSHH) available on request. They are free from asbestos or irritant fibres and are CFC and HCFC free.

## Storage

Products should be stored in clean, dry conditions, not exposed to UV-radiation and sunlight and in such a way that dirt and dust cannot adhere to the product surfaces.

Indoor storage of product is recommended. The products must be protected from being dropped or crushed by objects.

They must not be exposed to open flame or other ignition sources and must be stored away from flammable material such as solvents. Avoid all contact between ACTIS Hybrid products and caustic products.

## U-VALUE SIMULATOR

Discover a unique tool to get a quick simulation of your project by visiting [hybrid.insulation-actis.com](http://hybrid.insulation-actis.com)

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# ACTIS

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### ACTIS INSULATION LTD.

Unit 2a Cornbrash Park - Bumpers  
Way Bumpers Farm Industrial Estate  
Chippenham - Wiltshire - SN14 6RA  
T: +44 (0) 1249 462 888  
F: +44 (0) 1249 446 345  
E: [solutions@insulation-actis.com](mailto:solutions@insulation-actis.com)