NOVEMBER 2021

SWIP Internal Wall Insulation System

DESIGN GUIDE

swipIWI
INTERNAL WALL INSULATION

Keeping the home warm...

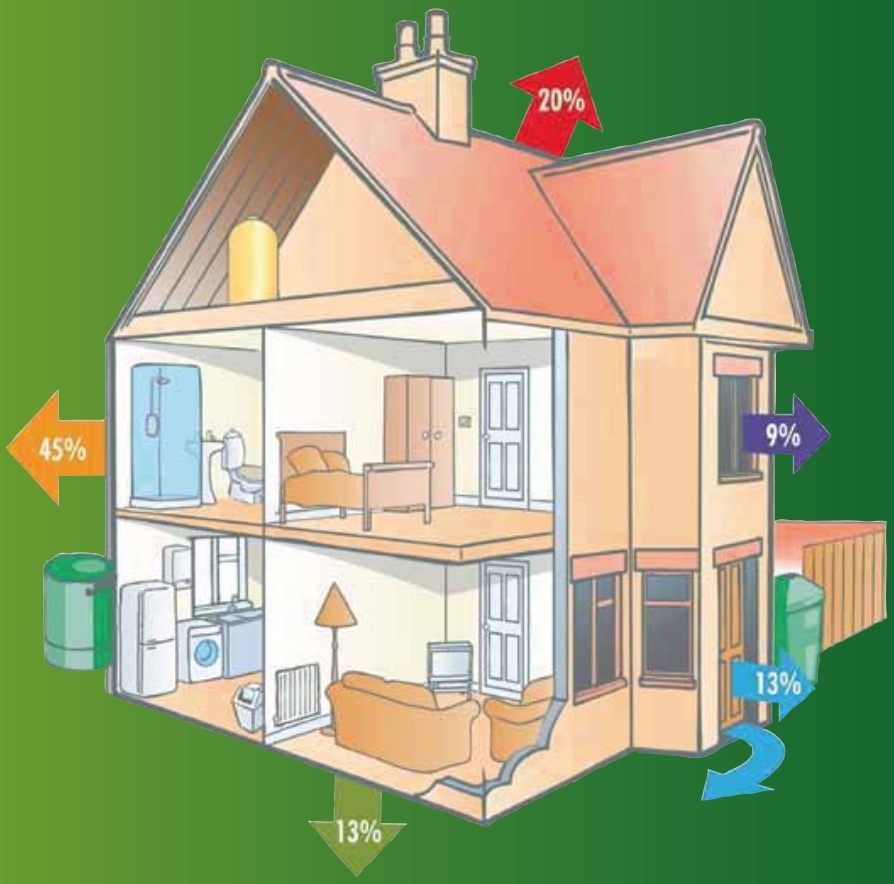
swipiwi.co.uk

The Importance of Wall Insulation in Houses

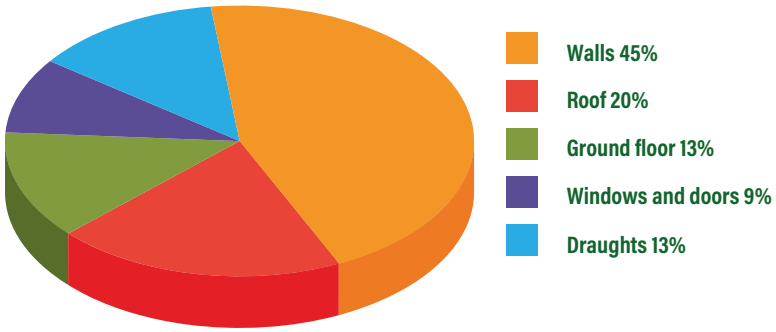
Buildings account for 40% of our energy consumption and in houses the majority of this energy is lost through the walls.
Therefore insulation is one of the most cost effective improvements that can be made and there are various insulation options depending on how the home is constructed. In general, the walls in the home can be categorised into two distinct types. Modern style homes, usually built post-war (1945), are constructed with cavity walls. Older style homes are constructed with solid brick walls.

In a home with cavity walls, around a third of the heat which is lost escapes through the walls. Occupants can make savings around £135 per year* and see a return on investment within a couple of years by insulating their cavities.

However, solid walls can lose even more heat than cavity walls. Typically the total heat loss from an un-insulated house with solid external walls account for 45%. Insulating solid walls can be more expensive than cavity wall insulation. However, higher savings can be achieved through internal or external insulation for solid walls saving the occupant up to £445 a year* and internal wall insulation offers a quicker payback than external wall insulation.



Where we Loose Heat



Why Insulate a Solid Wall Property

Over a quarter of the UK's CO2 emissions are generated by our homes. Of the estimated 25 million homes in the UK approximately 36% have been labelled as "hard to treat", the majority of which are solid walled properties. Insulating all the solid wall properties in the UK would provide significant reductions in the amount of CO2 we emit and would also help to reduce an occupant's fuel bills.

Save money on energy bills
Homes losing heat, lose money. A poorly insulated home will be costing the occupant significantly more in heating bills than a fully insulated property. Insulation slows the transfer of heat, reducing the amount of energy consumption in the home - keeping it warm in winter.

Eradicate fuel poverty
50 per cent of solid wall properties are occupied by people living in fuel poverty. Fuel poverty is linked to multiple deprivation and unaffordable fuel prices characterised by inadequate insulation and inefficient heating systems. Fuel poverty can be seriously damaging to people's quality of life and can be particularly uncomfortable for the older generation, children and the disabled. Britain is said to have the highest number of avoidable deaths due to winter cold in Western Europe.

Help reduce CO2 emissions
By insulating the solid walls in these properties the environmental impact of providing space heating is significantly reduced. It is estimated that a properly insulated solid wall home could save approximatly 2 tonnes of CO2 per year when compared to a poorly insulated one.*

Increase a home's value
Insulating a solid wall home properly can add to a home's market value by significantly improving its Energy Efficiency Rating. In the case of external wall insulation it can improve the overall aesthetics and internal wall insulation can improve the interior décor and appearance of a property.*

Energy Saving Trust May 2012

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Solid Wall Insulation Options

External wall insulation or internal wall insulation?

Solid walls can be insulated externally or internally. Each solution has its merits.

External Wall Insulation (EWI)

External wall insulation systems generally comprise an insulation layer mechanically or adhesively fixed (or both) to the existing wall and covered with a render coat. Timber boarding, concrete and clay tiles or metal cladding can also be applied. An external insulation system can radically improve the appearance of a property and planning permission as well as Building Regulations compliance may well be required prior to installation commencing. Particular attention will need to be paid, for instance, to window sills, rainwater downpipes and gutters, and eaves. Relocation or changes to the roofline may be required to accommodate the thickness of the system. External wall insulation systems (such as the SWIP EWI System) are installed by specialist installers.

Internal Wall Insulation (IWI)

Internal wall insulation solutions usually involve the installation of metal or timber studs with insulation installed between the studs and then overlaid with a vapour control layer and plasterboard. Alternatively, a thermal laminate board or rigid insulation board plus plasterboard can be mechanically fixed to the walls. These systems should not be used to isolate or hide moisture penetration or damp problems in the existing structure. In accordance with Building Regulations, solid walls should prevent moisture ingress arising from exposure to rain and snow without moisture penetrating to the inside and damaging the building. Insulating internally improves the thermal performance of the wall without affecting the external appearance of the building. However, there will be a small reduction in the internal floor area, typically only 1-2%. The SWIP IWI System can generally be installed with minimal disruption to occupants. In a large number of cases, internal wall insulation could be the preferred option because it costs less to install and maintain than external insulation systems, does not require scaffolding during the installation process, the existing appearance of the building is maintained and it provides flexibility during the refurbishment program.

Combination Installations

In many instances (especially mid terraced houses), the optimum solution may be to install a combination of both external and internal wall insulation. An EWI system may suit the back of a house where appearance is less important or already compromised by single storey extensions, outriggers, soil stacks, rainwater downpipes and boiler flues etc. The front of the house can be insulated with the SWIP IWI System, which maintains aesthetic quality of the existing facade, while also delivering high levels of thermal performance and a flexible installation solution.

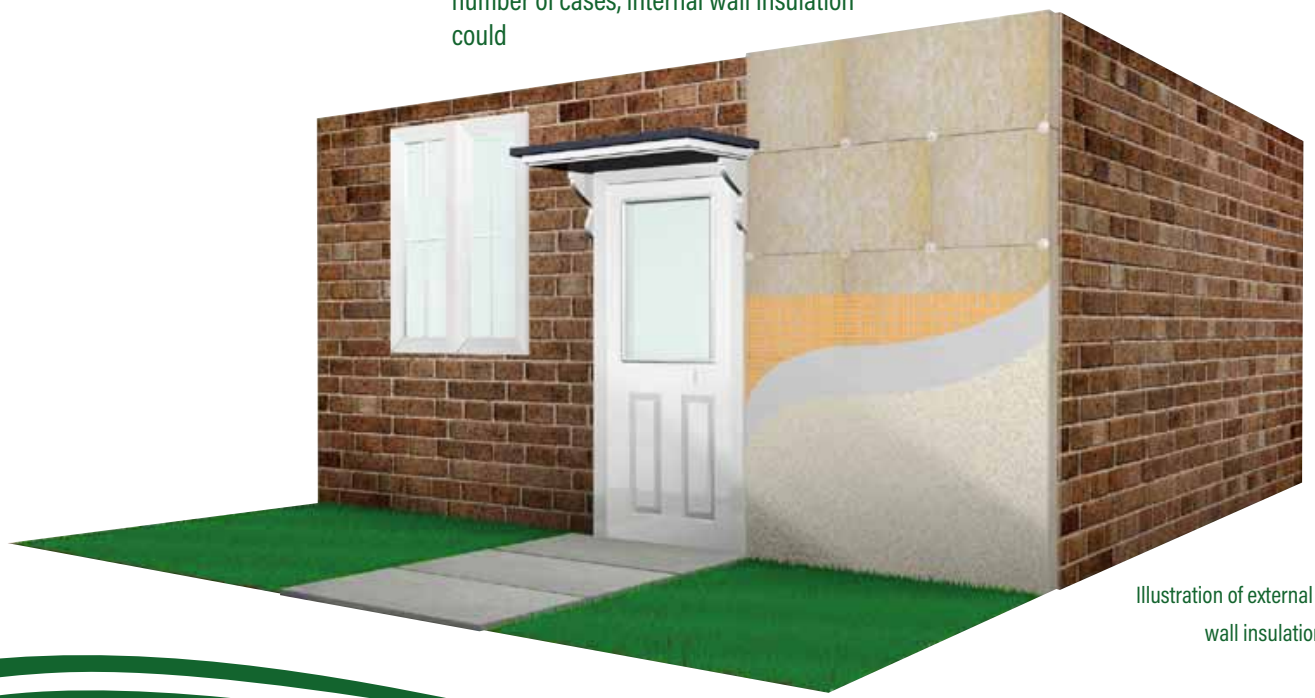


Illustration of external wall insulation

Solid Wall Insulation Options

Advantages of internal over external wall insulation

Solid external masonry walls can be upgraded in two ways, either internally or externally. There are several reasons why internal wall insulation may preferred to external wall insulation for upgrading solid masonry walls:

- It costs less to install than external insulation
- It is easier to maintain than external insulation
- No scaffolding is required
- The external appearance of the building is maintained so it can be installed in conservation areas
- Materials are readily available
- It can be installed on a room-by-room, single façade or whole house basis, as part of a full refurbishment plan
- Installation is not delayed by bad weather

Thermal Comfort

An internal wall insulation system enables comfortable room temperatures to be achieved more quickly than with an external wall insulation system. Heating time periods can be reduced, which, in turn reduces heating costs particularly in intermittently heated buildings such as dwellings.

Taking the Opportunity

An ideal opportunity to install internal insulation on a solid wall is when other work is already required, e.g. when existing plaster is crumbling and needs replacement, when the decorative finish is being removed, or when rewiring or installing central heating, or during total refurbishment. The existing wall should be examined and any remedial work, e.g. the insertion of a damp proof course or the repair of overflowing guttering, carried out before the insulation system is installed. It is important that the internal insulation system is not used to hide or isolate damp or wet walls.

Taking advantage of any opportunity to improve the energy efficiency of a dwelling and upgrading un-insulated external walls provides a number of benefits including:

- Reducing CO2 emissions
- Reduced fuel bills
- Increased thermal comfort for the occupiers
- Reduced risk of condensation and mould growth
- Reduction of fabric damage and maintenance cos ts.

Illustration of internal wall insulation

SWIP Internal Wall Insulation System

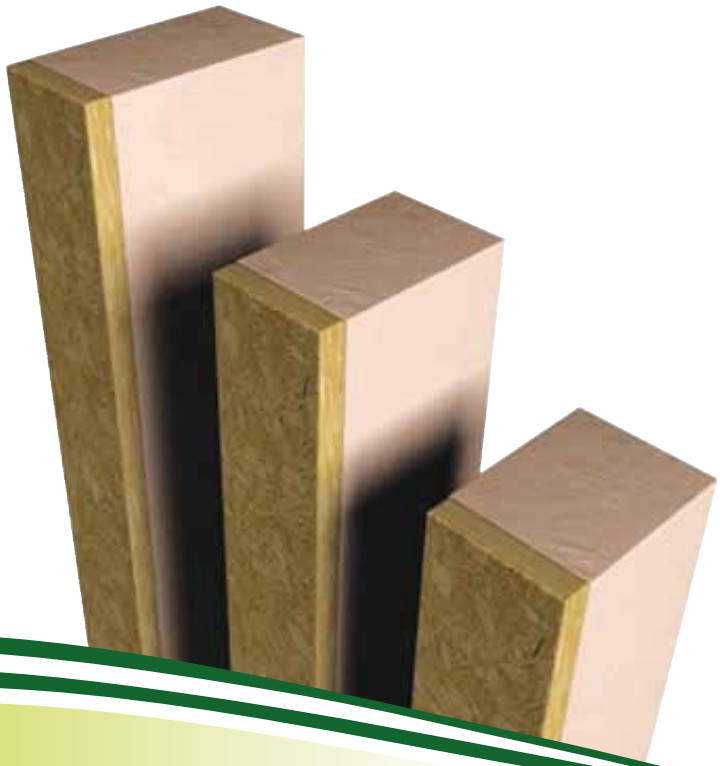
SWIP IWI system components SWIP Internal Wall Insulation provides a system based approach to internal wall insulation. The system has been tested and certified to demonstrate that all components work together as designed to deliver the required performance. The SWIP IWI System is designed for upgrading existing solid (or cavity) external walls. It consists of thermally engineered composite studs and insulation slabs, which can be combined to provide greater thicknesses of high performance thermal insulation than achievable by using a single thickness. SWIP Studs are a composite of high performance extruded polystyrene insulation and Oriented Strand Board (OSB). Traditional internal wall insulation which uses traditional timber or metal studs leads to thermal bridging through the studs. This needs to be compensated for by increasing the thickness of the overall system. The innovative use of the thermally insulated SWIP Studs within the SWIP system prevents this and results in an overall thinner system.The SWIP IWI System has been designed to simplify the process of upgrading existing solid (and cavity) masonry walls whilst delivering high levels of thermal performance. Typical U-values

U-values (W/m2K)			
SWIP Stud thickness (mm)	SWIP Stud with SWIP Batt	SWIPStud with SWIP Batt & 35mm SWIP PIR Laminate	SWIP Stud with SWIP Batt & 50mm SWIP PIR Laminate
65	0.43	0.29	0.25
95	0.30	0.22	0.19
2 x 65	0.24	0.19	0.17

For project specific calculations contact our Technical Advice and Support Centre on 0845 402 3508

BBA APPROVAL INSPECTION TESTING CERTIFICATION
CERTIFICATE 15/5262

INDOOR AIR COMFORT eurofins GOLD CERTIFIED PRODUCT



System Components

SWIP Stud – Extruded polystyrene bonded to Oriented Strand Board (OSB)

SWIP Batt - Water repellent glass mineral wool slab

Plasterboard fixing – Drywall screws

Sealant – SWIP multi purpose sealant

Plasterboard

Fixing to masonry - SWIP IWI fixings manufactured in accordance with BS1210

Wall plugs – SWIP IWI wall plugs

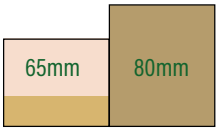
SWIP Vapour Control Layer – vapour resistance of 260MN.s/g

SWIP Intello Membrane - vapour resistance of 37.5MN.s/g

SWIP Reveal Boards - Extruded polystyrene bonded to plasterboard. Extruded polystyrene with a cement screen either side

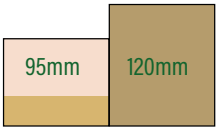
Comparison between SWIP Stud and Timber Stud

U-value 0.45 W/m2K



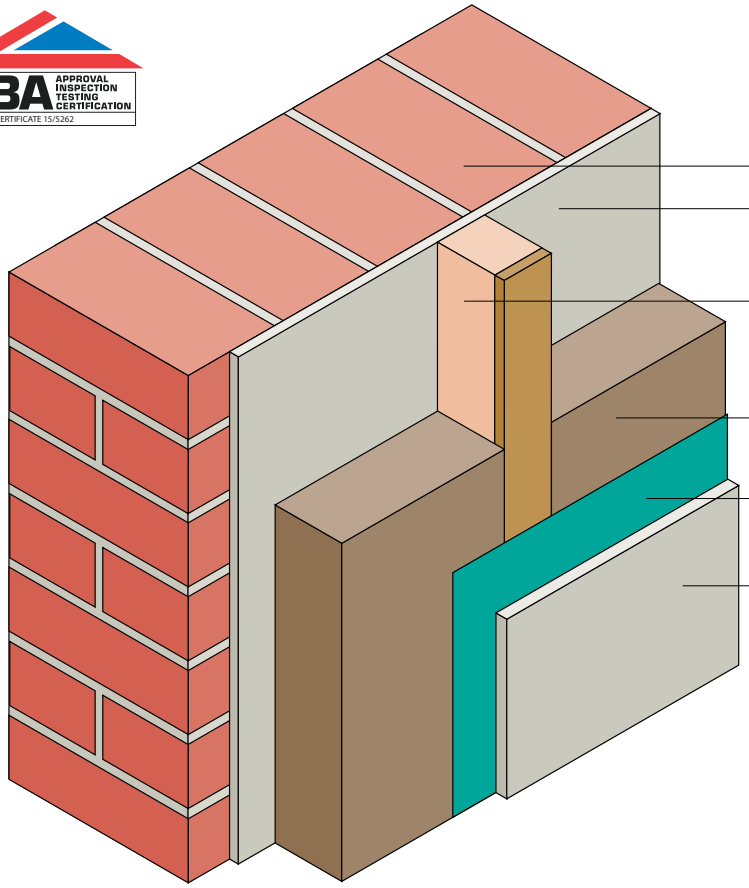
SWIP Stud Timber Stud

U-value 0.30 W/m2K

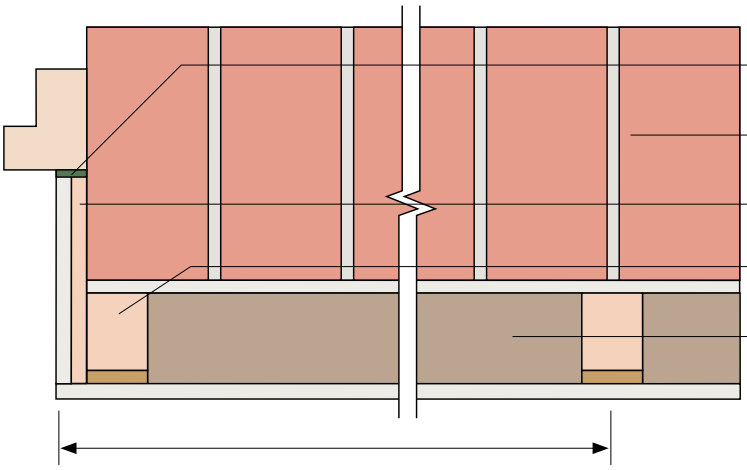


Ecostud Timber Stud

The Components...



- Existing solid masonry external wall
- Existing plaster finish (if sound)
- Thermally engineered SWIP Stud extruded polystyrene bonded to a 15mm strip of Oriented Strand Board
- Earthwool SWIP Batt, water repellent glass mineral wool slab
- SWIP Vapour Control Layer or SWIP Intello Membrane
- 12.5mm plasterboard or SWIP PIR Laminate



- Joint sealed with SWIP Sealant
- Existing solid masonry external wall with existing plaster
- SWIP Reveal lining reveal
- SWIP Stud
  (jamb stud inline with edge of existing reveal)
- Earthwool SWIP Batt between SWIP Studs

600mm dimension to centre of adjacent stud

SWIP Stud				
Thickness (mm)	Width (mm)	Length (mm)	Thermal conductivity (W/mK)	Thermal resistance (m2K/W)
65	50	2400	n/a	1.63
95	50	2400	n/a	2.54

Earthwool SWIP Batt				
Thickness (mm)	Width (mm)	Length (mm)	Thermal conductivity (W/mK)	Thermal resistance (m2K/W)
65	555	1200	0.035	1.85
95	555	1200	0.032	2.95

Features & Advantages of SWIP IWI System

Features of the SWIP IWI System

- A cost-effective, thermally efficient solution
- Quick and easy to install so rooms are out of commission for the minimum period
- Can improve the acoustic performance of the existing external wall (page 9)
- Finished using a plaster skim coat or dry lining techniques
- No need to remove existing wall finish, unless un-sound
- System can accommodate wall imperfections
- Easily adapted around openings such as windows and doors
- Can easily accommodate fixings for fittings such as radiators, pictures and shelving

Benefits of the SWIP IWI System

The use of SWIP Studs eliminates the thermal bridging issue associated with systems incorporating timber and metal studs. The thermal resistance of SWIP Studs, provides a high level of thermal resistance, which is comparable to that of the Earthwool SWIP Batts fitted between the SWIP Studs. For instance, the SWIP IWI System is almost 13% more thermally efficient than a timber stud system of the same thickness.

Compared with other internal insulation methods, the SWIP IWI System has the following additional advantages:

- The system components are unaffected by moisture
- A minimum number of lightweight, easy to handle, components are required
- System thickness is comparable to alternative solutions, but greater thicknesses can be provided simply by installing two studs, one on top of the other
- Airtight system enables maximum thermal efficiency to be achieved
- Incorporates highly sustainable glass mineral wool insulation (see page 9)
- Earthwool SWIP Batts have the maxi mum Euroclass A1 reaction to fire rating to BS EN 13501: Part 1

Thermal Performance

A typical 225mm (nine inch) thick un-insulated masonry external wall with dense plaster internally will achieve a U-value of approximately 2.00W/m2K. The same wall insulated with the SWIP IWI System, using 95mm thick SWIP Studs, will achieve a U-value of at least 0.30W/m2K, an improvement in thermal performance of over 80%.

If a typical three bedroom semi-de-tached house were to be upgraded in this manner, it would reduce the carbon emissions associated with the house by approximately 2 tonnes per year.
The tables (on pages 6 and 7) give key thermal performance data for the system. Three SWIP Stud thicknesses are available, 65, 80 and 95mm, which can be combined to give a variety of thickness solutions.

Double stud installation

Enhanced thermal performance can be achieved by installing double layers of SWIP Studs. For instance, a combination of two 65mm SWIP Studs will achieve a U-value of 0.25W/m2K. After securing SWIP Studs in accordance with the installation instructions on pages 15 - 19, screw fix a second SWIP Stud to the first one. Both SWIP Studs should be installed in the vertical position. When fixing the second SWIP Stud it is essen-tial that the screws should be sufficient to ensure a minimum 38mm penetration into the first SWIP Stud. Care should be taken to ensure that the two sets of screws are not installed in coincident positions. Earthwool SWIP Batts, plasterboard and SWIP Vapour Control Layer are installed in the same manner as in a single stud application.

Other Key Issues for the SWIPIWI System

Sustainability

The SWIP IWI System incorporates Earthwool SWIP Batt glass mineral wool insulation, which has the following sustainability credentials:

- It has the maximum A+ generic BRE Green Guide rating
- The basic raw materials are silica sand (the earth's most common mineral) and recycled glass bottles
- It can be recycled at the end of the building's life
- Manufactured using ECOSE® Technol ogy a revolutionary new formaldehyde free binder technology, based on rapidly renewable materials instead of petro-based chemicals. It reduces embodied energy and delivers superior environmental sustainability
- Supakube compression packaging saves energy and delivers more product per pack

Reducing air leakage

Existing dwellings can suffer from excessive air leakage which, if not treated, can lead to high energy costs, occupant discomfort from draughts & external noise, as well as a reduction in indoor air quality. To ensure that upgrading of external walls is as effective as possible, it is important to keep air leakage to an absolute minimum & preferably prevent it. Air leakage can be between the interior & exterior environments, as well as between different elements of the building envelope. Air leakage through the masonry wall occurs through cracks in the bricks, gaps where there is poor adhesion between the mortar & the masonry units, or diffusion through the masonry units themselves. Where the plaster has been removed & air leakage through the wall is thought to be excessive, it should be tackled before the SWIP IWI System is installed by applying a parge coat to the inner surface of the wall. As the insulation component of the SWIP IWI System is in intimate contact with the vapour control layer, air movement behind the system should be negligible. However, to prevent unwanted air leakage all junctions with other elements should be well sealed with particular attention being paid to the joints between the SWIP IWI System and window frames. The SWIP IWI System incorporates SWIP Vapour Control Layer which also acts as an air leakage barrier and enables the system to be integrated with other elements of the building such as ceilings and intermediate floors which is essential if air leakage levels are to be minimised or negated. In addition, SWIP Multi Purpose Sealant should be used to seal electric sockets against the plasterboard, as well as all gaps around plumbing service penetrations. Any large gaps or penetration through the dry lining system can be sealed with expanding foam.

Air leakage in rigid foam board internal wall insulation solutions

Internal wall insulation solutions incorporating rigid foam boards often incorporate a batten airspace, (either behind, or in front of the insulation component) which can lead to air leakage and air movement through the system. Air leakage in, or through, an internal wall insulation solution can lead to a large amount of unnecessary heat loss as well as providing discomfort to the occupants of the dwellings due to the presence of cold draughts.

Note: Air leakage should not confused with ventilation, which is the controlled flow of air into and out of the building and is usually achieved by incorporating ventilators or ventilation systems into the fabric of the building.

Acoustic Performance

Glass mineral wool is inherently good at absorbing sound and allows sound energy to be dissipated within the body of the insulation. This helps to reduce flanking sound transmission across intermediate floors and also provides sound insulation from external noise sources, especially as the plasterboard lining provides additional mass to the existing construction. The airborne sound insulation performance of a solid masonry wall, both to and from the exterior, can be improved significantly by installing the SWIP IWI System; a typical improvement of up to 5dB can be expected. However, to maximise the improvement in acoustic performance, it is important that the installed system is as airtight as possible.

Thermal Mass

Generally speaking the amount of available thermal mass may not be significantly reduced by the installation of an internal wall insulation system in most house types. Whilst there are no definitive rules as to how much thermal mass is required, a general rule of thumb is that the surface area of the walls and floors providing the mass should be at least six times that of the area of glazing in the room. The vast majority of existing houses will have masonry separating and partition walls, which may provide sufficient thermal mass to help stabilise the internal environment.

Thus, in a typical mid-terraced property, where the SWIP IWI System is only installed on the glazed elevations, the thermal mass of the dwelling may not be significantly effected.

Avoiding Dampness within the Construction

Dampness in Walls

The most common causes of dampness in solid masonry external walls are, penetrating damp (often caused by deterioration of the existing mortar, blocked gutters or faulty rainwater goods), rising damp and condensation, particularly surface condensation (see also page 11). Dampness can have a negative effect on the physical properties of the materials used to construct the wall. Best practice is to cure any damp problems before installing an internal insulation system in order to protect the building fabric from long term damage. For instance, missing or damaged render should be reinstated, faulty or missing flashings should be repaired or replaced and areas suffering from mortar deterioration should be re-pointed with a suitable mortar mix. The fact that the SWIP IWI System uses water repellent insulation between the studs means that it can be installed even on external walls that still have some residual dampness. (i.e. during the drying out period after wall treatment).

The extruded pSWIP Studs, being impervious, is also olystyrene component of unaffected by exposure to moisture, SWIP Studs should be mechanically fixed to the existing wall using moisture and corrosion resistant fixings and wall plugs.

Prior to installation of the SWIP IWI System a comprehensive property survey should be carried out to establish the condition of the building, its suitability to receive the system and also to identify any remedial work required before installation of the system commences.

Interstitial Condensation

Interstitial condensation occurs when warm, moist air from inside a building penetrates into the fabric of a structure and meets a cold surface, where it cools, reducing its ability to carry moisture and increasing the risk of condensation forming within the construction. As can be seen from the condensation analysis graph below (Figure 1), interstitial condensation does not occur within external walls that have been upgraded by the installation of the SWIP IWI System because the actual vapour pressure stays below the saturated vapour pressure through the whole construction. This is due to the presence of the SWIP Vapour Control Layer or Intello membrane on the warm side of the insulation, i.e. between the plasterboard and the SWIP Batt insulation.

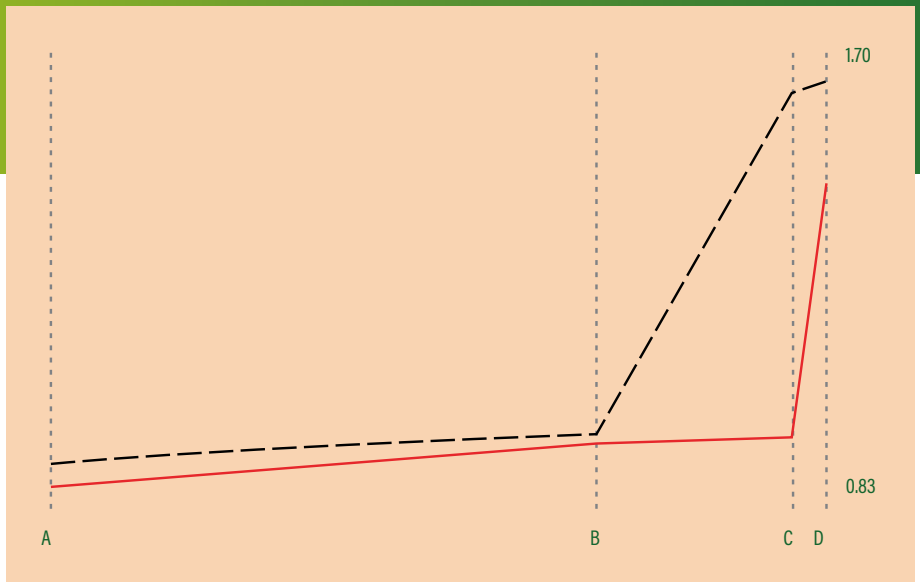


Figure 1 – Condensation prediction graph of a wall insulated with the SWIP IWI System

Avoiding Thermal Bridging and Surface Condensation

Thermal Bridging

Thermal bridging occurs when the continuity of the insulation is broken causing the inner surface of the wall at that point to become much cooler than the surface where the wall is insulated. This typically occurs at the junction of an external wall and a separating wall or floor. Thermal bridging can cause an increase in heat loss, surface condensation and mould growth and can be a particular problem in terraced houses.

Areas of limited space

To help reduce thermal bridging, the SWIP 27mm and 12.5mm Insulated Reveal Boards can be used in areas of limited space, where the full depth of the SWIP IWI system may not be appropriate. These areas could be window reveals, return walls, around non-moveable services or pipework, limited access staircases and lobbys and limited space cloakrooms to name just a few. It is very important that where the full depth of the SWIP IWI system cannot be installed that these areas are accounted for to help prevent condensation and mould growth.

Surface Condensation

Simply put, surface condensation occurs when water vapour in the air cools and condenses (reverts to liquid form) when it comes into contact with a cold surface. Reducing the amount of water vapour in the air by extracting moist air from kitchens and bathrooms and increasing the surface temperature will prevent condensation forming on the internal surface of solid external walls. The installation of the SWIP IWI System will raise the surface temperature of the walls to a level whereby condensation will not form under usual maximum humidity conditions experienced in dwellings. As can be seen from Figure 2, the warm surface temperature of the internal walls (red colour) remains constant across the SWIP Studs, reducing the risk of condensation forming on cooler surfaces.

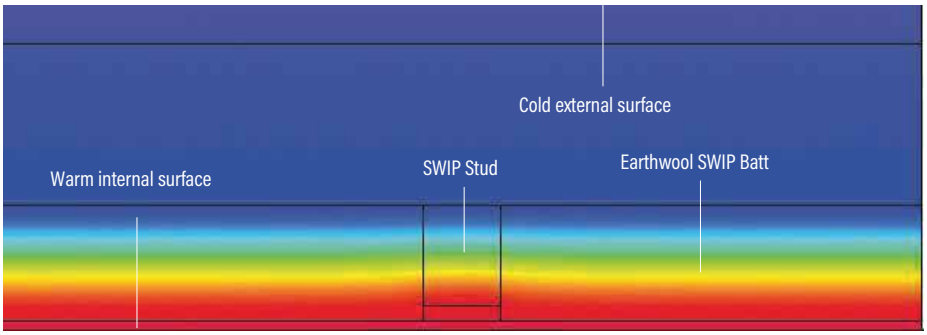


Figure 2 – Thermal contours through the external wall and SWIP IWI System
(Image generated using HEAT 3 software)

Combustion Appliances

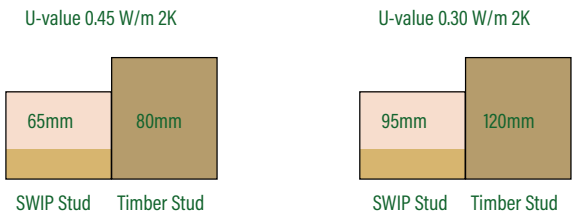
It is imperative that ventilation requirements for gas, oil or coal fired combustion appliances are not compromised by the installation of the SWIP IWI System and the system does not interfere with the supply of fresh air to the appliance. Recommendations, guidance and compliance with the Building Regulations for the ventilation of combustion appliances can be found in Building Regulations Approved Document J - Combustion appliances and fuel storage systems.

If in any doubt regarding the safety of a combustion appliance consult with a Gas Safe registered engineer.

Flues

Care must be taken to ensure that flues and ventilation measures for gas, oil or coal fired combustion appliances are not blocked or adversely affected by the installation of the SWIP IWI System. Where a flue penetrates the SWIP Shell IWI System, the flue can be completely surrounded and encased by Earthwool SWIP Batt which is a non-combustible glass mineral wool product. The extruded polystyrene content of SWIP Stud should not be subjected to temperatures in excess of 70°C. The flue can be faced with a non-combustible board, e.g. plasterboard or cement based board, prior to the installation of the SWIP IWI System. However, if in doubt regarding the surface temperature of the flue, contact the manufacturer of the appliance under consideration.

Comparison between SWIP Stud and Timber Stud



Party Walls

Thermal

Thermal bridge junctions can occur when the insulation is not continuous, such as a party wall. Whilst returning the insulation along the party wall for 400mm can mitigate the thermal bridging, care needs to be taken as installing the insulation along the party wall can make the wall colder and therefore, this will actually increase the risk of condensation and mould growth in the neighbouring property if it is not suitably heated or ventilated.

Acoustic

When installing SWIP reveal board on separating walls there is potential to reduce the acoustic performance of the separating wall, due to the transfer of vibrations that can occur if the thermal laminate board is of the rigid foam type. In instances where the acoustic performance of the separating wall is of overriding concern a mineral wool thermal laminate should be installed. Alternatively, install an independent timber stud frame (fixed at the floor and ceiling only) and friction fit 50mm of Acoustic Roll between the studs, finish with two layers of 12.50mm plasterboard and stagger the joints between the plasterboard sheets.

Figure 3 –Thermal contours at the junction of a 225mm solid external wall and a party wall (Images generated using HEAT 3 software)

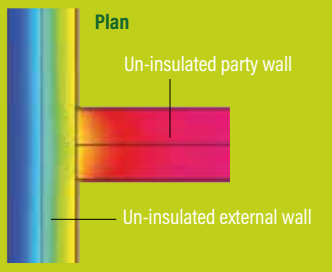


Figure 3a Party wall without insulation

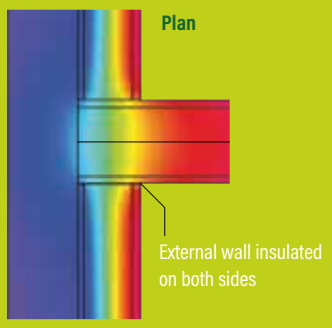


Figure 3b External wall insulated either side of uninsulated party wall

Neither external wall nor party wall insulated

Figure 3a shows the effect of the party wall bridging the external wall. The internal corners are in the yellow contour and are colder than the main body of the external wall, increasing the risk of condensation and mould growth to occur and further reducing the thermal performance of an already poorly performing wall.

External wall insulated party wall un-insulated

Figure 3b shows the effect of not insulating at the party wall junction there is significant additional heat flow through the junction and potential for surface condensation and mould growth to occur.

Insulation of SWIP IWI System

Figure 9

Figure 10

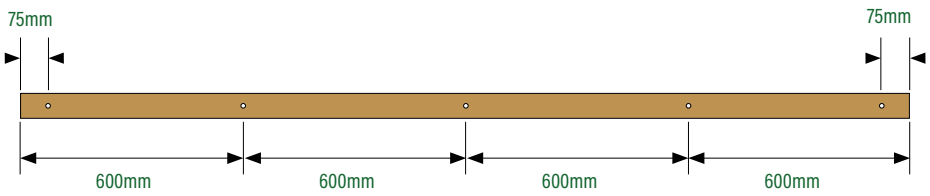
Figure 11

Note: The SWIP IWI system can only be installed by SWIP Insulation approved SWIP IWI installers

Before installing the SWIP IWI System a comprehensive property survey should be carried out to establish the condition of the building, its suitability to receive the system and identify any remedial work needed prior to starting the upgrade process. At this point a decision can be made as to whether an internal or external wall insulation system is most appropriate for the property under survey.

1. Where plaster is sound, fix directly through it, removing existing skirting boards if required before fixing the SWIP Studs (Figure 9). If not sound, remove decayed plaster and, for greatest airtightness, seal with a parge coat. SWIP Studs are to be installed with the OSB facing into the room.

2. Screw fix SWIP Studs horizontally to the foot of the existing wall. A minimum fixing penetration of 40mm is required into the existing masonry wall (excluding thickness of plaster). Five fixings per SWIP Stud are required but the number can be increased as required, or as dictated by site conditions. Position the fixings at 600mm maximum centres and 75mm from the end of each SWIP Stud as shown below. These SWIP Studs should be positioned so that, if the wall is bowed or not vertical, the verticality of the SWIP IWI System is maintained. The horizontal SWIP Studs should also be located to that the OSB facing can provide a fixing point for the skirting board (Figure 10).



3. Screw fix SWIP Studs horizontally at the head of the wall following the same process as in step 2. Then, fix SWIP Studs vertically between the top and bottom horizontal SWIP Studs as indicated in step.
4, spacing them at 600mm horizontal centres to coincide with plasterboard dimensions. Ensure that the vertical SWIP Studs are cut and installed so as to be in close contact with the horizontal studs at floor and ceiling level (Figure 11). Where the ceiling line is irregular, cut SWIP Studs to extend from the horizontal SWIP Stud at the foot of the wall to the ceiling and fix as described in step 2. Once the SWIP Studs are fixed in position, mechanically fix SWIP Stud noggins between the studs at ceiling level to receive plasterboard fixings.

4. Fix all vertical SWIP Studs to the existing wall using screws and suitable universal wall plugs.

5. If there are irregularities in the wall surfaces, pack out the SWIP Studs using suitable materials which are unaffected by moisture such as marine ply, preservative treated timber or plastic packing pieces (Figure 12).

6. Friction fit SWIP Batts between the SWIP Studs ensuring the insulation zone is completely filled. There should be no gaps between the SWIP Batts and they should be installed so as to be in intimate contact with the SWIP Studs and the SWIP Vapour Control Layer (Figure13). Where SWIP Batts require cutting, they should be cut 5mm wider than the space thay are intended to fill (Figure 14).

Insulation of SWIP IWI System

Figure 12

Figure 13

Figure 14

Figure 15

Figure 16

7. Once the insulation has been installed, staple SWIP Vapour Control Layer, to the SWIP Studs. SWIP Vapour Control Layer should be free from holes, any gaps should be made good, with tears repaired and overlaps sealed with aluminised tape. Screw 12.5mm standard plasterboard to the SWIP Studs using 38mm drywall screws, or wood screws, at nominal 300mm horizontal and vertical centres, reducing to 200mm centres at corners. Ensure that there is a 3-5mm gap between the plasterboard and the existing floor to allow space for sealing, as in step 8. The plasterboard sheets should be installed full height vertically. (Figure 15)

8. Seal all joints at the perimeter of the plasterboard using SWIP Multi Purpose Sealant to prevent air movement behind or through the SWIP IWI System. (Figure 16)

9. Mechanically fix the skirting boards through the plasterboard to the horizontal SWIP Studs at the foot of the wall, or fix them with a high strength instant grab adhesive to the plasterboard. Seal the skirting to the floor with SWIP Multi Purpose Sealant as a final precaution against air leakage. See page 18 for an alternative method for fixing skirting boards Footnote: The plasterboard selected should be suitable for the activities to be undertaken within the space being upgraded. For instance, where the walls may be subject to mechanical damage, consider using an impact-resistant plasterboard such as SWIP Denseshield.

Pullout strength Pullout strength tests have confirmed that SWIP Stud performs equally to that of metal or timber studs, 38mm Drywall screws or wood screws should be used when securing plasterboard to SWIP Studs.

Installing SWIP Vapour Control Layer
SWIP Vapour Control Layer should be installed in accordance with the recommendations of BS 5250: 2011 'Code of practice for control of condensation in buildings' and should be installed on the warm side of the insulation.

All laps in SWIP Vapour Control Layer and junctions at interfaces with other elements and materials in the building e.g. metal and timber studs and joists, cementitious boards and uPVC window frames should be sealed with an aluminised tape. The layer of the SWIP Vapour Control will be reduced unless it is effectively sealed to other elements of the building.

All joints in the SWIP Vapour Control should be lapped by a minimum of 75mm, and sealed with aluminised tape, which should be applied equidistantly over the lap.

Whenever possible, laps in the SWIP Vapour Control Layer should be coincident with an SWIP Stud in order to aid the sealing process. The number of laps can be kept to a minimum by installing full roll widths of SWIP Vapour Control Layer.

Where the heads of fixings penetrate the SWIP Vapour Control Layer they should be sealed with an aluminised tape, as should any tears, holes or cuts. The tape should overlap the damaged area by a minimum of 75mm.

Where larger areas of damage occur they should be repaired with a patch of SWIP Vapour Control Layer and aluminised tape applied as detailed above.

SWIP Intello Membrane

The SWIP Intello membrane is high-performance intelligent vapour membrane, which can regulate the diffusion of humidity from the surrounding air, all year round, by changing its permeability. This is achieved by the membrane being able to change its molecular structure depending upon the climate and either closing up to prevent the [passage of moisture or opening up to allow the passage of moisture.

This climate-controlled membrane can eliminate moisture accumulation and mould growth from occurring as well as providing an air tightness barrier.

1. Installing membranes
Roll out the membrane and fasten it using galvanised staples with a width of at least 10 mm and a length of 8 mm at intervals of 10-15 cm. Install the membrane to stop approx. 4 cm short of adjacent building components so that an airtight bond can be applied here subsequently.

2. Overlapping the membranes
Allow for an overlap of approx. 10 cm between the membranes. The marking that is printed onto the membrane will serve as a guide here.

3. Clean the subsurface
Clean the subsurface (dry and free of dust, silicone and grease) and carry out an adhesion test, if necessary.

4a. Sticking the overlaps
Centre the TESCON VANA system adhesive tape on the overlap and gradually stick it in place, ensuring that there are no folds or tension.

4b. Rubbing the adhesive joint firmly
Rub tape firmly into place using the pro clima PRESSFIX. Ensure that there is sufficient resistance pressure.

5. Masonry gable end wall, creating an airtight joint
Put the vapour retarder in place. Leave slack for expansion so as to allow for relative motion between components. Remove all release films from CONTEGA SOLIDO SL. Centre the tape and gradually stick it in place. Rub tape firmly into place using the pro clima PRESSFIX.

Insulation at Window and Door Openings

Figure 17

Figure 18

Figure 19

Figure 20

Wall Openings

10. Around openings (windows, doors etc), screw fix SWIP Studs to the wall at the edge of jambs, sills and heads as determined by on site requirements (Figure 17).

11. Line the openings with a SWIP reveal board, preferably, with a minimum thermal resistance of 0.34m2K/W. If there are thickness constraints due to the size of the window or door frame, install as thick a thermal laminate board as is practicable. The edge of the thermal laminate board should finish flush with the face of the SWIP Studs (Figure 18).

12. The thermal laminate reveal board should be fully bedded into position (a multi purpose plaster adhesive is suitable) in order to prevent air movement behind the board. Once the adhesive has set, secure the thermal laminate with localised mechanical fixings, typically at 600mm vertical centres, or as determined by on site requirements Complete continuity of insulation should be achieved around the opening at the junctions of heads, jambs & sills by cutting back the plasterboard at the edge of the thermal laminate board (Figure 19).

13. When setting out SWIP Studs adjacent to openings in relation to plasterboard dimensions, make allowance for the fact that the plasterboard needs to extend beyond the centre line of the jamb SWIP Stud to cover the thermal laminate board. For example, the dimension between the centre lines of the jamb SWIP Stud & the next SWIP Stud needs to be 600mm, less the thermal laminate thickness (inc adhesive dabs), less 25mm (half the SWIP Stud width) (Fig 20).

Installation Method at Skirting Board Level

Whenever possible skirting boards should be removed prior to installation in order to maintain insulation thickness and continuity.However, where this is not possible the following method may be used. Screw fix horizontal SWIP Studs (between vertical SWIP Studs) at the appropriate height in order to provide a fixing point for new skirting board and facilitate securement and sealing of the SWIP Vapour Control Layer.The depth of the horizontal SWIP Studs should be reduced accordingly to ensure that they are installed in line with the face of the vertical SWIP Studs. Where necessary reduce the thickness of the SWIP Batts to suit the reduction in depth of the SWIP Studs.

Fixings should be located 75mm in from each end and one in the centre of the horizontal SWIP Stud. A minimum fixing penetration of 40mm is required into the existing masonry wall (excluding thickness of skirting board and plaster).

Insulation at Window and Door Openings

Figure 21

Figure 22

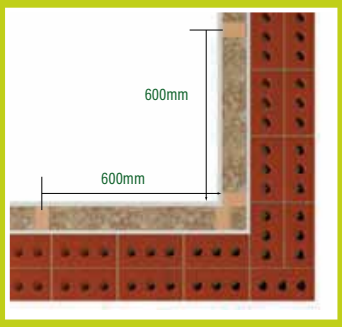


Figure 23

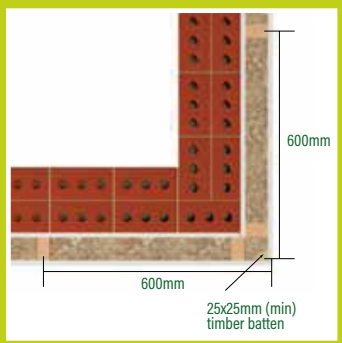


Figure 24

Stepped or Check Reveals

14. Install a new window frame towards the outside of the wall and build out head and jamb reveals with a suitably sized timber infill piece to accommodate the recommended thickness of thermal laminate board, ensuring a strip of damp proof membrane is fixed to the back of the timber using galvanised nails or stainless steel staples, i.e. between the timber and the external wall (Figure 21).

15. Fix SWIP Studs to the face of the jambs and flush with the timber infill piece and form a continuous insulated lining around the opening with the plasterboard cut back accordingly (Figure 22). Internal cornerInternal corners should be installed in accordance with Figure 23 and the corner void fully filled with SWIP Batt. The centre of the SWIP Stud adjacent to the corner SWIP Stud should be adjusted to accommodate the corner detail (Figure 23).

External Corner

External corners should be installed in accordance with figure 24. In order to provide additional rigidity at the junction of the plasterboard linings a timber batten (minimum 25mm x 25mm) should be screwed fixed in position as indicated and the corner void fully filled with SWIP Batt. The centre of the SWIP Stud adjacent to the corner SWIP Stud should be adjusted to accommodate the corner detail (Figure 24).

Plasterboard Finishing Techniques Taping and jointing

In order to accommodate a taped and jointed finish, taper edged plasterboards should be installed. After applying a primer coat over the plasterboard and joints, a reinforced tape and jointing compound should be used to achieve a seamless finish. SWIP Drywall provides a comprehensive range of jointing compounds and tapes. In all instances follow the plasterboard manufacturers instructions.

Skim Coat

A 2mm to 5mm thick coat of SWIP Multicover or SWIP Universal Board Finish can be applied to the face of the plasterboards. The board joints should be reinforced with paper or fibre tape.

Decoration

Follow manufacturer's instructions regarding priming requirements prior to the installation of wallpaper or specialist coverings.

Tiling

Face SWIP Studs with SWIP Moisturesh-ield or Aquapanel when the SWIP IWI System is installed in humid or wet areas such as kitchens and bathrooms. The weight of tiling (including adhesive) fixed direct to plasterboard (without plaster skim) should not exceed 32kg/m2.

Follow guidance and recommendations from tiling manufacturers and BS 5385 accordingly.

Accomodating Fixtures and Fittings

Heating Radiators
Installing the SWIP IWI System on the external wall of a room may provide an opportunity to install a smaller radiator and also allow it to be re-sited on an internal wall. Alternatively, it may be possible to replace wall hung radiators with skirting radiators. Further information should be obtained from, for instance, a heating engineer or radiator manufacturer.

Fixing Radiators
Do not fix radiators to plasterboard alone. Sufficient support is provided only when radiator brackets are fixed:

- Through the plasterboard into the SWIP Studs
- To horizontal timber battens (fixed over the plasterboard)
- To horizontal timber battens, fixed between the SWIP Studs and to the masonry wall
- To SWIP Drywall Fixing Channels, screw fixed to the SWIP Studs behind the plasterboard to the masonry wall using suitable stand-off fixings. Timber battens are suitable for loads up to 75kg per metre run acting parallel to the plasterboard and should be used for heavier radiators.

SWIP Drywall Fixing Channels are suitable for loads up to 50kg per metre run acting parallel to the plasterboard and can be used for small radiators.

Picture Rails and Dado Rails
Picture rails and dado rails should be removed before installing the SWIP IWI System as they will prevent the SWIP Studs being fixed tightly against the wall. However, picture rails and dado rails can be fixed to the new plasterboard lining using an instant grab adhesive after installation of the SWIP IWI System, or the rails can be fixed to the SWIP Studs using suitable screws.

Fixing to Plasterboard
Light to medium weight items such as mirrors, pictures, shelving and curtain poles can be fixed in position using standard self drilling, winged or toggled plasterboard fixings and fixings such as SWIP Drywall anchors which are suitable for loads up to 20kg acting parallel to the plasterboard.

For heavier items, such as kitchen cupboards, specialist heavy duty cavity anchor fixings should be used or they can be fixed to timber battens which have been secured to the existing external walls at pre-determined positions. Heavier items can also be secured by fixing back to the masonry wall using proprietary stand-off fixings or a suitably sized standard screw. Alternatively, screw fixing an 18mm plywood sheet to the face of the SWIP Studs over the entire wall area (after installing the SWIP Vapour Control Layer) to provide a solution to a wide range of fixing problems.

NB: If in any doubt as to the suitability of fixings, consult the fixings manufacturer.

Accomodating Fixtures and Fittings

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Electric Cables and Fittings

Electric Cables in Existing Walls
In a large number of instances the SWIP IWI System will be installed onto existing walls where the electric cables will be buried within the internal finishes. The current carrying capacities for electric cables buried in plaster are contained in Appendix 4 of BS 7671, Requirements for electrical installations - IET Wiring Regulations - Seventeenth edition.

The most commonly used cable sizes in domestic properties are 2.50mm for 32 amp ring circuits serving socket outlets and 1.00mm or 1.50mm for lighting circuits.

The current-carrying capacity for the 2.50 mm cables sunk into plaster are given in BS 7671 as 27 amps for twin and earth cable and 24 amps for wiring in conduit.

The effect of installing a layer of insulation over the inner surface of the wall would reduce the current-carrying capacity of the 2.50mm cables to 25 amps and 22 amps for the twin and earth and conduit wiring respectively, and apply when insulation has been installed only on one side of the wall. Where the SWIP IWI System is installed and there is also existing cavity wall insulation, the cables should not require any additional de-rating due to the high thermal mass of the wall which will in effect negate the risk of the cables reaching elevated temperatures. Regulation 433.1.5 of BS7671 requires cables used for 32 amp ring circuits to have a minimum current-carrying capacity of 20 amps. Because the ratings derived above are greater than 20 amps existing 2.50mm, 32 amp ring circuit cables will continue to meet the requirements of BS 7671 for current carrying capacity after the internal wall insulation system has been installed.

Lighting Circuits
Lighting circuits are generally protected by either 6 amp of 10 amp fuses or circuit breakers. The current-carrying capacity of 1.00mm or 1.50mm cables sunk into plaster will remain suitable for lighting circuits when an internal wall insulation system is fitted. Larger cable sizes, such as 6.00mm twin and earth, are likely to be used with 45 amp fuses or circuit breakers for heavier loads such as electric cookers or electric showers. The current-carrying capacity of a 6.00mm cable sunk into plaster will be such that it will still be suitably protected by a 45 amp device after the installation of an internal wall insulation system. From the above it is concluded that the current carrying capacity of existing ring circuits, lighting circuits and 6.00mm cable circuits for cookers or electric showers will remain adequate after the installation of an internal wall insulation system.

Note: As with all electrical work, if at all in doubt consult a suitably competent person such as a qualified electrician.

Electric cables & extruded polystyrene
PVC insulated cables should be located in suitable conduit to avoid being in direct contact with extruded polystyrene insulation in order to prevent plasticiser migration which can cause loss of protection to the conductors.

Extending cables for socket outlets & accessories
When socket outlets on the existing external wall need to be repositioned on the new SWIP Stud lining, it is likely that the existing cables will need to be extended. If there is sufficient spare length in the existing cables then they should be pulled through so that they can be re-connected to the accessory fitted to the SWIP IWI System.

However, if the existing cable has to be extended BS 7671 requires joints and terminations to be made in suitable enclosures, one solution is for the additional length of cable to be connected into the back-box of the existing accessory which is then fitted with a blank cover plate.

The additional cable could then be taken through a knock-out panel in the existing back box (with a grommet fitted) and fed through to the new fitting.

The section of cable running from the old socket outlet position to the new position needs to be considered in accordance with BS 7671 and de-rating factors may need to be applied as detailed in Table 52.2 of BS 7671. The application of a de-rating factor to the cable used in this situation is unlikely to result in the cable rating falling below 20 amps (as detailed in BS 7671) although each case should be judged upon its own merits. Further requirements for joints and terminations are detailed in BS 7671. BS 7671 also requires (with some exceptions) that 'every connection shall be accessible for inspection testing and maintenance'. BS 7671 published on 1st July 2011 has added another 'exception' to the list which applies in this instance. Insulation displacement or insulation piercing connections complying to BS 5733 and marked MF (maintenance free) do not need to be accessible.Electric cables that have been extended can then be run forward in conduit and sealed to the vapour barrier.Extending cables in this manner is not classified as "notified work" (according to Approved Document P, 2006 Design and installation of electrical installations)

Accomodating Fixtures and Fittings

and can be carried out by a suitably competent person. All electrical work should be carried out in accordance with Approved Document P, the relevant part of the current IEE Regulations and associated Guidance.

Note: As with all electrical work, if at all in doubt consult a suitably competent person such as a qualified electrician.

Socket and Switch Boxes

Socket and switch boxes should be fixed into the plasterboard lining in accordance with the manufacturer's instructions. Plasterboard and drywall socket and switch boxes simply clip into place when inserted into a pre-prepared opening. When the face plate is tightened onto the socket box, the box grips against the plasterboard, before the face plate is finally fixed, the boxes should be sealed against the plasterboard using SWIP Multi Purpose Sealant to prevent air leakage. Cables penetrating the socket box should be sealed with SWIP Multi Purpose Sealant. (Figure 25).As with an existing installation, back-boxes fitted into the front plasterboard face of the insulated wall should be of the type intended for plasterboard or dry walls. The SWIP Batt insulation behind the back box should be cut away to the depth of the back-box rather than forcing the back-box in and compressing the SWIP Batt.

Figure 25

A plasterboard socket box

Surface Mounting of New Cables

Where new surface mounted electric cables are installed (horizontally) on the room side of the SWIP IWI System they should be run in metal conduit to where the fixings/outlets are required prior to the installation of the vapour control layer. The SWIP Studs should be notched to suit the dimensions and shape of the metal conduit.

Installation of New Circuits

The requirements of Part P of the Building Regulations and BS 7671 must be adhered to when installing new ring circuits. Where a complete new electrical installation, or a single new circuit, is to be fitted in a house having internal wall insulation installed the electric cabling should be run behind the plasterboard but in front of the SWIP Batt insulation slabs. The cable ratings for this situation should be taken as those given for Reference Method A in BS 7671. The rating for a 2.50mm flat twin and earth cable installed in this position is 21 amps (Table 4, D5, Col 4, BS 7671) of 20 amps if in conduit in this position. Thus with this installation method a 2.50mm cable is suitable for a 32 amp ring circuit. Also 1.00mm or 1.50mm cables are suitable for lighting circuits protected by 6 amp or 10 amp fuses or circuit breakers. For a circuit supplying a cooker or electric shower which is protected by a 45 amp device a 10.00mm cable would be required.

BS 7671 includes specific requirements for cables that are concealed in a wall or partition at a depth of less than 500mm from the surface. Cables installed in an internal wall insulation system fall into this category. The specific requirements include the use of metal conduit or trunking or other mechanical protection against penetration by nails and the like, the use of armoured cables or cables to BS 8436 and running the cables in specific zones. If the option of running the cables in specific zones is selected then additional protection by means or a residual current breaker (RCD) is also required. The recommended option is that of running the cables in the zones specified in Regulation 522.6.6 with the installation of an RCD.

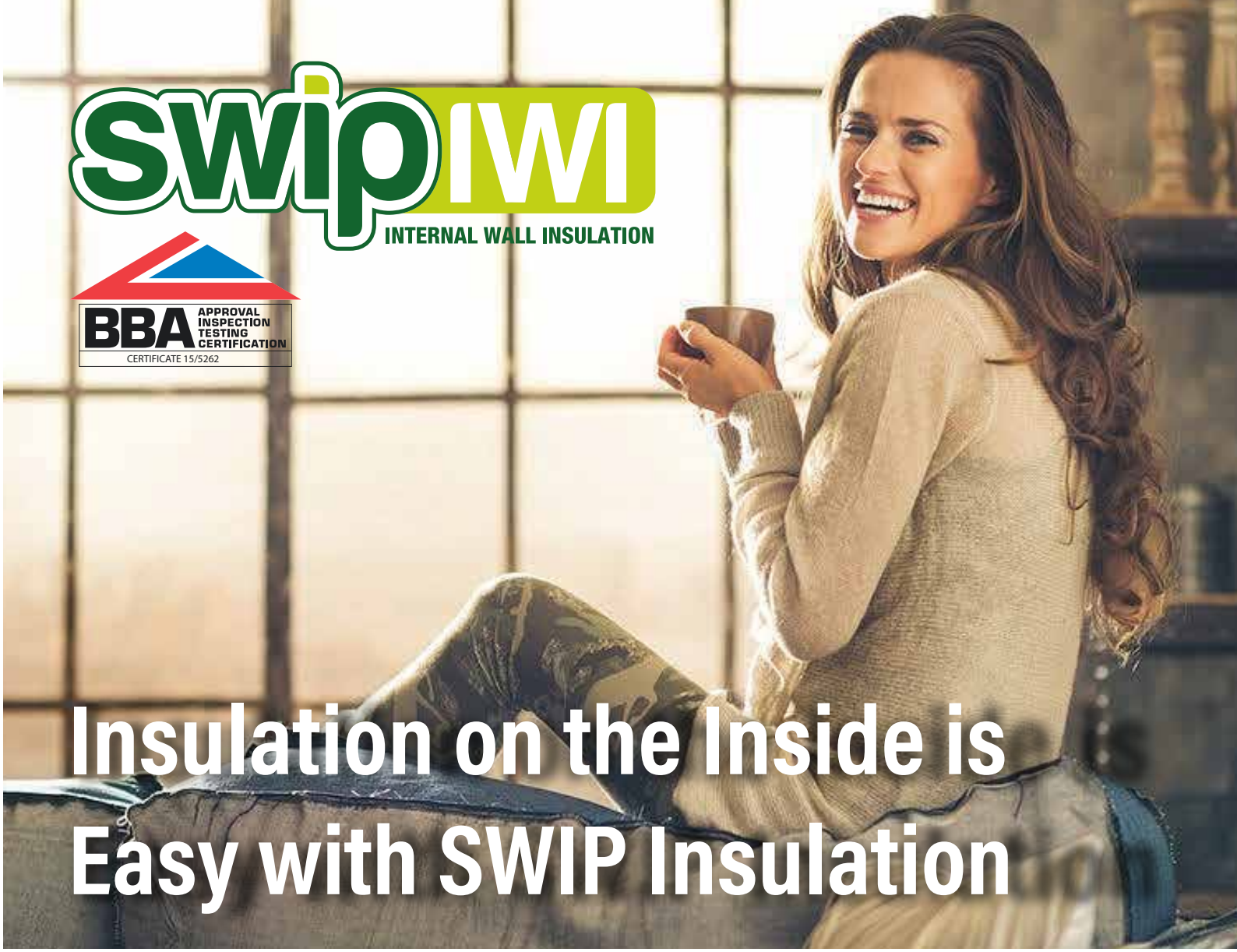
Note: As with all electrical work, if at all in doubt consult a suitably competent person such as a qualified electrician.

swipIWI

INTERNAL WALL INSULATION

BBA APPROVAL INSPECTION TESTING CERTIFICATION

CERTIFICATE 15/5262



Insulation on the Inside is Easy with SWIP Insulation

- An ideal solution to install to voided properties
- Can also be installed with minimal disruption in occupied homes
- Reduced thickness compared to traditional stud systems

1. SWIP Studs fixed to wall

2. SWIP Batt between SWIP Studs

3. Plasterboard finish

swipIWI

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Keeping the home warm!

Internal Wall Insulation aftercare and maintenance guide

Now that your property has the benefit of a SWIP Internal Wall Insulation System, this aftercare and maintenance guide is designed to help you maintain the integrity of the system as well as information on living in a well insulation home.

It is important that the contents of this guide are explained in full, prior to handing over the document.

Introduction

The SWIP Internal Wall Insulation System (IWI) is a fully tested system comprising of a range of components. The SWIP IWI System has been granted a third-party independent certification of performance, issued by the British Board of Agrément. The certificate number is 18/5006

Your IWI system is formed of various components including, glass mineral wool slab, Ecostuds, a vapour control layer, sealants and fixings. It is important to understand how any future works to the property may affect these component parts of the system and how best to repair and replace when required.

Maintenance is an important aspect to ensuring the long-term effective performance of the system, and this is also important for the external skin of the property. A lack of maintenance to the external skin of the building may lead to excessive moisture ingress which may cause issues and negate any warranties and guarantees provided.

Your IWI system provides a highly thermally efficient wall with increased air-tightness and it is important to understand how this affects living in the property and how best to compensate for the new efficiencies that your property now has.

- Due to the increased thermal performance of the walls, adjust your heating controls to suit the temperature of your property.

- Do not block or obstruct any air vents.

- It is important that you have the right ventilation for your property and that this is maintained in a good working order.

- Reduce water vapour inside of the property if possible.

- The drying of clothes should be done outside or with window and doors open, and the venting of tumble dryers should be to the outside of the property. Cooking pans should have lids on or sufficient window / doors opened to allow for the vapour to disperse.

Part One - General Care

Impact and abrasions

The IWI system is finished with a plasterboard and plaster skim coat and general recommendations regarding impact and abrasions would be the same as for other walls of a similar build using plasterboard. Where damage has been caused to the system, then identification of the degree of damage would need to be ascertained and the repair procedures would depend upon the damage and the components that are affected. (Please see Part Two for further details).

Weather seals and sealants

Sealants and weather seals should be checked annually to ensure that they are still providing a suitable air and weathertight seal. Check external sealants that they are still in place without any signs of cracking or shrinkage, which could allow for moisture ingress. If any external sealants are found to be failing, then replace immediately with low modulus silicone sealant (as these sealants are more durable). For internal sealants, use the SWIP Multi-Purpose Sealant for all locations.

Ventilation

Maintaining good ventilation for combustion appliances and general health is very important. There might be a requirement for extra ventilation and our recommendation is for trickle vents and or mechanical ventilation to be retro-fitted in the dwelling, if this is deemed necessary.

Avoiding damage

General care and consideration should be used when moving furniture or objects around the property, so not to cause significant deep impact damage. Surface abrasions, small holes, corner bead dents and hairline cracking can be patched without any interference with the main components of the IWI system.

Part Two - Modifications and Repairs

Fixing items

When installing fixtures and fittings, it is best to locate them (and their fixings) directly over a SWIP stud if possible. SWIP studs are positioned around all openings, at floor and ceiling levels and at a typical separation distance of 600mm.

Light to mediumweight items can be fixed in position using standard self-drilling, winged or universal plasterboard fixings, and fixings such as Knauf Drywall anchors, which are suitable for loads up to 20kg acting parallel to the plasterboard.

For heavy items (items weighing more than 20kg), identify the position of the SWIP studs and secure heavy items to them using appropriate fixings. Heavier items can also be secured by fixing back to the masonry wall using suitably sized standard screws or proprietary fixings.

Avoid damaging, puncturing or penetrating the SWIP vapour control layer.

Where this is not possible and the SWIP vapour control layer will be punctured by a picture hook, bracket or mechanical fixing etc, place a piece of vapour resistant aluminised tape over the fixing position after the hole has been drilled but prior to the installation of the fitting in order to:

- Minimise damage to the plasterboard
- Minimise the amount of water vapour permeating the system
- Provide a partial seal around the fitting
- Provide additional strength locally to the penetration in the plasterboard

Note: If in any doubt as to the suitability of fixings, consult the fixings manufacturer.

Replacing or installing new radiators

If replacing radiator, it is important to remember that the radiator must be fixed to the SWIP studs or to any installed batten or channels, using suitable fixings. The plasterboard is not load bearing and therefore should not carry any load from the radiator.

If installing a radiator in a new position, then first locate the position of the vertical studs and mark this on the surface. As this is a new position there will be no provision for any horizontal fixing strips built-in to the system, therefore a horizontal batten or channel will need to be fixed back the SWIP studs to take any horizontal fixings.

Important note: All electrical works should be undertaken by a suitably competent person, such as a qualified electrical engineer.

Electrical Cables and socket outlets

If you need to install any electrical cables, it is recommended that these are surface mounted with clips or run them through plastic or metal trunking fixed back to the plasterboard.

It is not recommended that any electrical cables are installed behind the plasterboard and buried into the system as this will cause the need for remedial work to the system. If cables need to be located within insulation, they should be run within a conduit and possibly increased in size. Insulated cables should not be in contact with the extruded polystyrene content of the SWIP stud. Advice on this should be sought from a suitably competent person, such as a qualified electrician.

New sockets should be surface mounted and fixed accordingly.

Picture, dado rails, coving and architectural details

Picture and dado rails, coving and architectural details can be fixed using an instant grab adhesive if suitable or alternatively fixed to the SWIP studs using suitable screws.

Tiling

Tiling to the kitchen, bathroom or a wet-room should not exceed a weight of 32kg/m2 including the tiling adhesive. Care should be taken when removing tiles not to cause damage to the background and always follow the guidance from the tiling manufacturers.

Protection

If there is intrusive work required and there is a need to use a heat producing appliance such as a blow torch, then it is recommended that a heat resistant protection pad is used against the SWIP studs due to the extruded polystyrene and OSB that the studs are manufactured from.

Cutting into the system

Identify the SWIP stud positions to avoid cutting through into the studs if possible. Using a suitable cutting tool such as a reciprocating saw, drywall hand saw or multi-tool, cut a clean line through the plaster skim coating and the plasterboard. To reduce dust and excess plaster damage use masking tape on the line of the proposed cut. Always cut-out using clean straight lines, or a clean circular hole to reduce the requirement for making good afterwards. When repairing cuts in the plasterboard always use the SWIP Multi-Purpose Sealant to prevent air leakage.

When drilling into the system use a piece of vapour resistant aluminised tape on the position of the proposed hole to help provide a partial seal around the hole once drilled.

Repairing the system

Where damage has occurred to the SWIP IWI system which necessitates any partial replacement, then it is recommended that only a SWIP approved installer is contacted to initiate the repair. Only SWIP IWI system components or SWIP approved components can be used to repair the system.

Repairing plaster skim

If the surface has suffered slight damage and abrasions but no damage to the plasterboard, then use a suitable smooth finish plaster filler to repair the damage. Once dry sand down using a fine sandpaper.

Repairing plasterboard

For small areas of damage to the plasterboard, then this can be repaired using a suitable filler with a mesh. If the damaged area is larger in size circa 100mm x 100mm then a repair can be instigated by using a stuck frame within the opening to adhere the newly cut plasterboard to.

Repairing the Vapour Control Layer

Any damage to the vapour control layer (VCL) must be repaired as soon as possible. The use of aluminised tape can secure a small area of damage, whilst larger areas may require the installation of a VCL patch, overlapped by a minimum of 75mm and adhered to the existing VCL by means of an aluminised tape.

Penetrations through the system

All penetrations through the system must be fully sealed with SWIP Multi-Purpose Sealant to prevent air leakage and a reduction in the performance of the system. Where possible, for smaller penetrations, use the aluminised tape to help provide a partial seal.

New flues

If there is a requirement for the provision of a new flue, then the following information should be noted.

The SWIP insulation batt is manufactured from non-combustible glass mineral wool, and the flue can be completely surrounded and encased by it. Proximity of a flue to the SWIP studs should be avoided as the extruded polystyrene content should not be subjected to temperatures in excess of 70°C.

Replacement windows and doors

Most windows replacements are undertaken from the outside and therefore only a limited amount of damage to the plasterboard or SWIP Reveal Board would be expected. Damage to seals will occur and the reinstatement of any window or door must include adequate air leakage seals. With windows that are replaced from the inside, care must be taken not to cause excessive damage to the system especially at the corners of the openings.

Tools and product availability

The SWIP IWI system is available to purchase from:
SWIP Limited,
ROC House,
30 Inkerman Street,
Birmingham B7 4SB

Telephone 0845 402 3585 - Email info@swipiwi.co.uk

General tool requirements

EN 131 access step ladders, other specified access equipment, walk board, inspection lamps, dust sheets, utility knives, hand saws, battery powered hand driver, drill, multi-tool, & reciprocating saw, 110v stepdown transformer, extension cabling and 110v power tools, smoothing trowels, hand trowels, floats, mortar board, smoothing knife, tape measure, screw driver, Drywall hand saw, hammer, level, plumb line, brush, buckets, cleaning supplied, task lighting, working at height access platforms, edge protection barrier step and ladders, stud sensor and caulking gun.

The correct PPE (Personal Protective Equipment) should be used at all times.

All tools and PPE are available from DIY stores or builder's merchants.

Part Three - Warranties, Compliance and Contacts

Building Regulations Compliance Certificate

A Building Regulations Compliance Certificate is required when a heat producing appliance is installed in a property. The local authority should be notified so a Building Regulations Compliance Certificate can be issued. This is usually provided within 30 days.

Guarantees and warranties

The SWIP IWI System is covered by a 25-year insurance backed guarantee. This guarantee covers workmanship defects and materials defects for a 25-year period.

Contact details

Installer details

Name	
Address Line 1	
Address Line 2	
City / Town	
County	
Postcode	

Customer details

Name	
Address Line 1	
Address Line 2	
City / Town	
County	
Postcode	

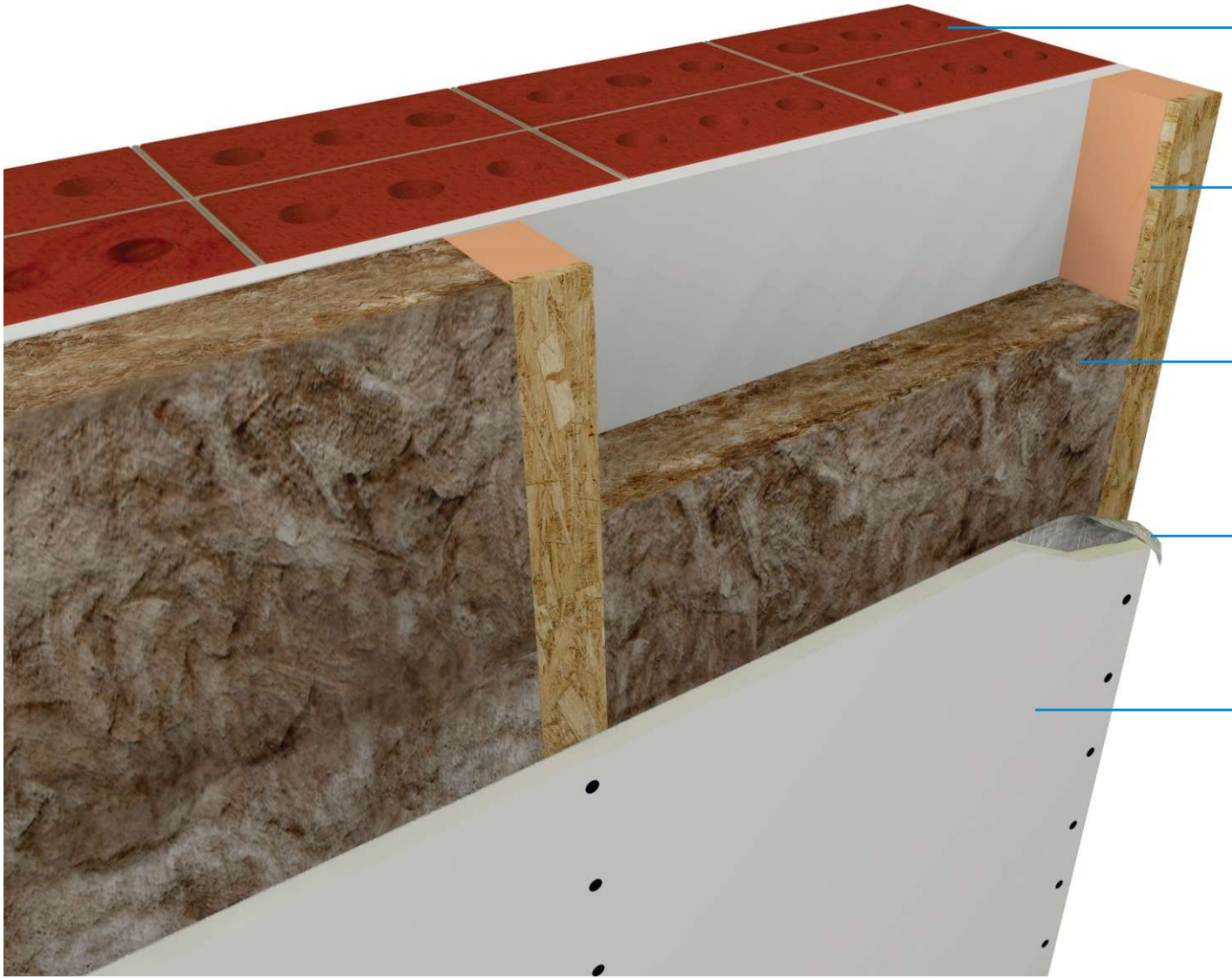
Customer Signature		**Installer Representative Signature**	

System Supplier Details

SWIP Limited, ROC House, 30 Inkerman Street,
Birmingham B7 4SB

Telephone 0845 402 3585 - Email info@swipiwi.co.uk

SWIP IWI System



Existing wall

SWIP Stud

SWIP Batt

SWIP Vapour Control Layer

Plasterboard

SWIP IWI Vapour Open Intello Plus Membrane

Moll Bauökologische Produkte GmbH
Rheintalstraße 35-43
68723 Schwetzingen
Germany

Tel: 00 49 62 02 27 82 0
e-mail: info@proclima.de
website: www.proclima.de

BBA APPROVAL INSPECTION TESTING CERTIFICATION
TECHNICAL APPROVALS FOR CONSTRUCTION

Agrément Certificate
14/5155
Product Sheet 1

PRO CLIMA INTELLIGENT VAPOUR CONTROL AND AIRTIGHT SYSTEMS

INTELLO AND INTELLO PLUS

This Agrément Certificate Product Sheet[1] relates to Intello and Intello Plus, humidity-variable vapour control layers (vcls) manufactured from a polyethylene copolymer with a polypropylene fleece and reinforcing net, for use as vcls in roofs, walls and suspended floors and as part of the Pro Clima Intelligent Airtight System, in domestic and non-domestic buildings up to and including humidity class 4 and air barriers.

(1) Hereinafter referred to as 'Certificate'.

CERTIFICATION INCLUDES:

- factors relating to compliance with Building Regulations where applicable
- factors relating to additional non-regulatory information where applicable
- independently verified technical specification
- assessment criteria and technical investigations
- design considerations
- installation guidance
- regular surveillance of production
- formal three-yearly review.

KEY FACTORS ASSESSED

Risk of condensation — the products will reduce the risk of interstitial condensation (see section 6).

Air permeability — the products are air barriers and can reduce heat loss by air infiltration (see section 7).

Strength — the products have adequate strength to resist damage during installation (see section 8).

Properties in relation to fire — the membranes are classified as E in accordance with BS EN 13501-1 : 2018 and their use is restricted in some cases by the national Building Regulations (see section 9).

Durability — The products are rot-proof, do not tear easily and will have a life equal to that of the element in which they are installed (see section 11).

The BBA has awarded this Certificate to the company named above for the products described herein. These products have been assessed by the BBA as being fit for their intended use provided they are installed, used and maintained as set out in this Certificate.

On behalf of the British Board of Agrément

Date of Second issue: 15 July 2019
Originally certificated on 22 January 2015

John Albon
Chief Scientific Officer

Claire Curtis-Thomas
Chief Executive

The BBA is a UKAS accredited certification body – Number 113.
The schedule of the current scope of accreditation for product certification is available in pdf format via the UKAS link on the BBA website at www.bbacerts.co.uk
Readers are advised to check the validity and latest issue number of this Agrément Certificate by either referring to the BBA website or contacting the BBA direct.
Any photographs are for illustrative purposes only, do not constitute advice and should not be relied upon.

British Board of Agrément
Bucknalls Lane
Watford
Herts WD25 9BA

tel: 01923 665300
clientservices@bbacerts.co.uk
www.bbacerts.co.uk

Vapour Open Intello Membrane

1. Installing membranes

Roll out the membrane and fasten it using galvanised staples with a width of at least 10 mm and a length of 8 mm at intervals of 10-15 cm. Install the membrane to stop approx. 4 cm short of adjacent building components so that an airtight bond can be applied here subsequently.

2. Overlapping the membranes

Allow for an overlap of approx. 10 cm between the membranes. The marking that is printed onto the membrane will serve as a guide here.

3. Clean the subsurface

Clean the subsurface (dry and free of dust, silicone and grease) and carry out an adhesion test, if necessary.

Vapour Open Intello Membrane

4a. Sticking the overlaps

Centre the TESCON VANA system adhesive tape on the overlap and gradually stick it in place, ensuring that there are no folds or tension.

4b. Rubbing the adhesive joint firmly

Rub tape firmly into place using the pro clima PRESSFIX. Ensure that there is sufficient resistance pressure.

5. Masonry gable end wall, creating an airtight joint

Put the vapour retarder in place. Leave slack for expansion so as to allow for relative motion between components. Remove all release films from CONTEGA SOLIDO SL. Centre the tape and gradually stick it in place. Rub tape firmly into place using the pro clima PRESSFIX.