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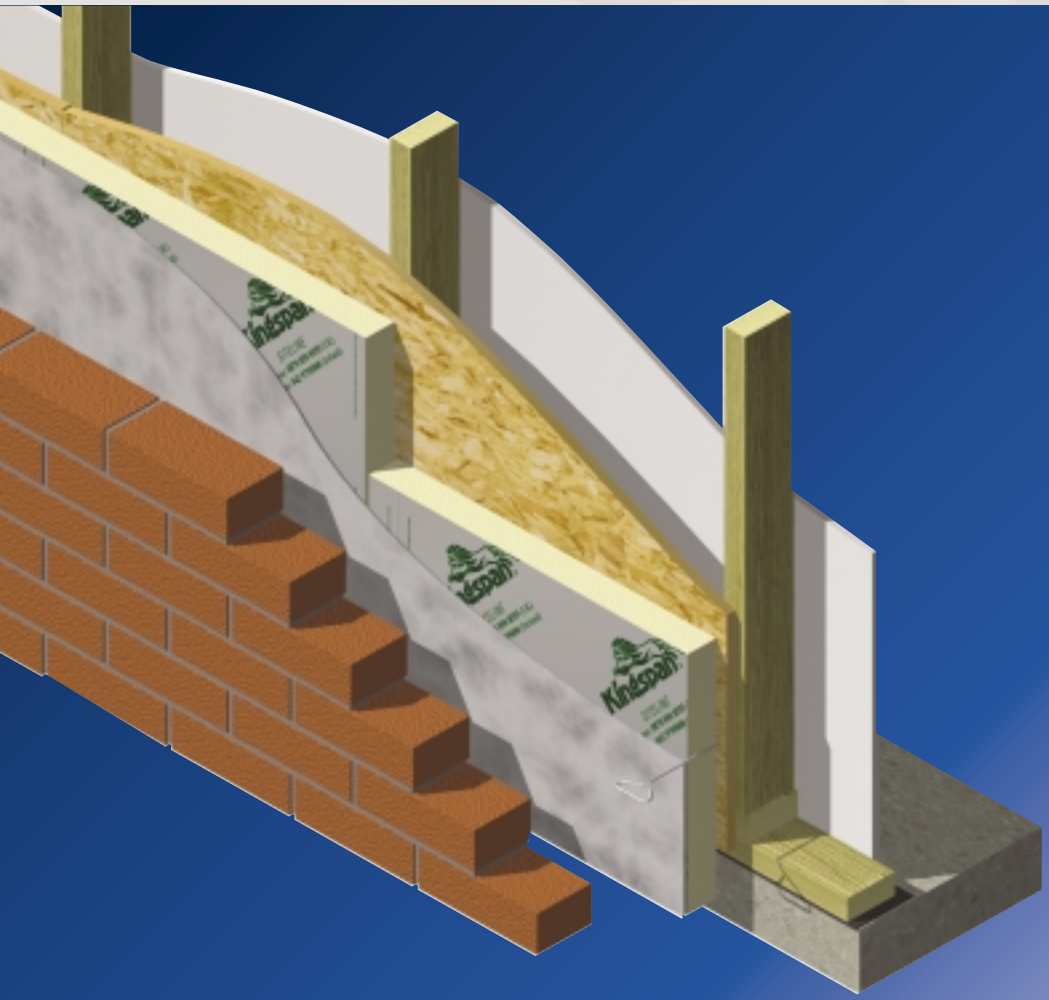
Fifth Issue May 2007

Thermawall® TW55

INSULATION FOR TIMBER AND STEEL FRAMING SYSTEMS



- High performance rigid urethane insulation – thermal conductivity 0.023 W/m·K
- Can be used between studs or as an insulating sheathing
- Suitable for use with timber frame and steel frame wall constructions
- Can eliminate cold bridging
- Unaffected by air movement
- Resistant to the passage of water vapour
- Easy to handle and install
- Ideal for new build or refurbishment
- Non–deleterious material
- CFC/HCFC–free with zero Ozone Depletion Potential (ODP)

zero o.d.p

nilflam

Kingspan® Insulation Solutions

Typical Design Details

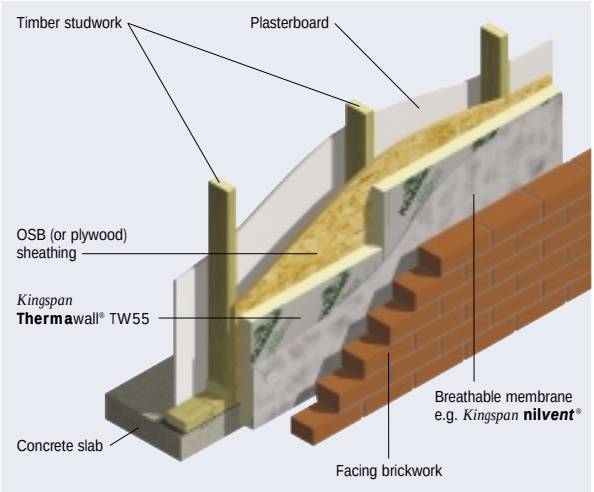


Figure 1 External Masonry – Timber Frame Wall with Insulating Sheathing

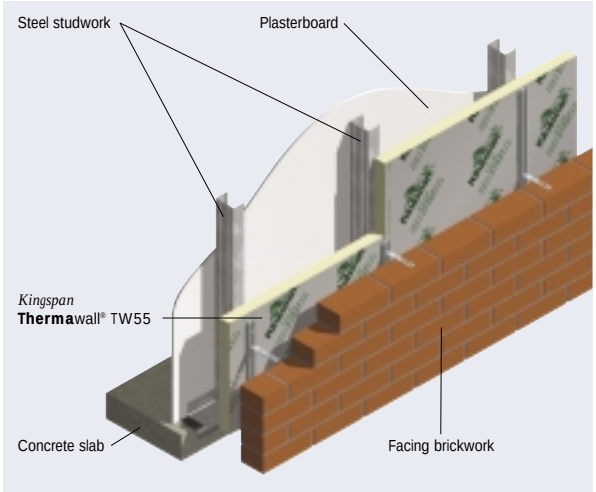


Figure 2 External Masonry – Steel Frame Wall with Insulating Sheathing

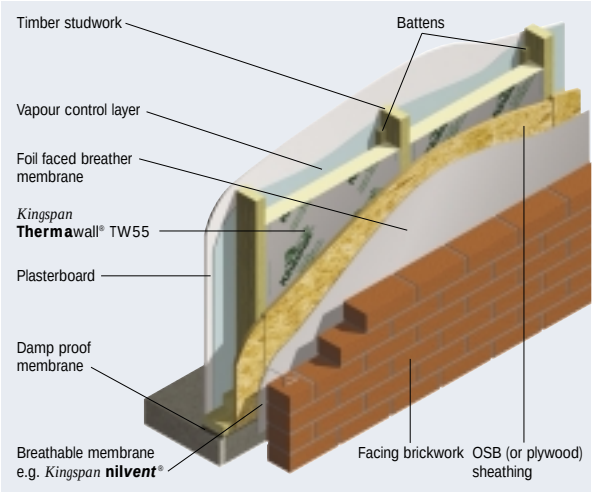


Figure 3 External Masonry – Timber Frame Wall with Insulation Between Studs (Utilising Foil Faced Breathable Membrane)

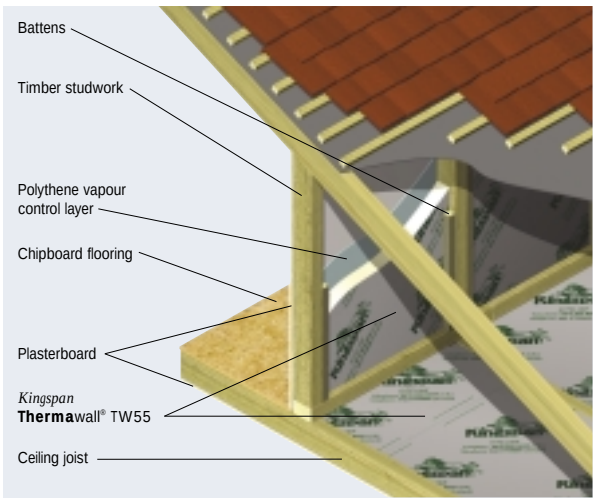


Figure 4 Dwarf Wall – Insulation Between Studs

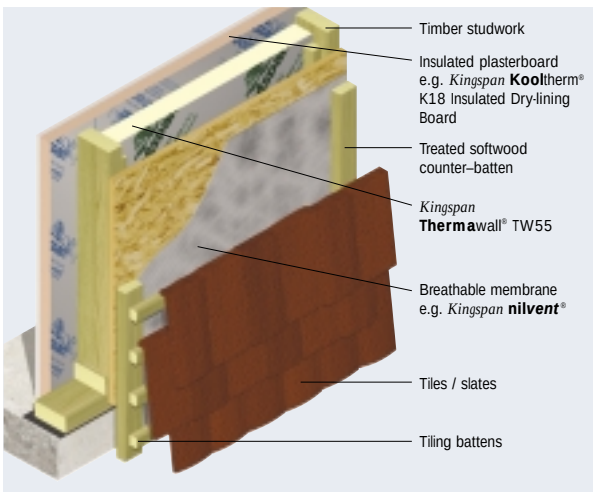


Figure 5 Timber Clad / Tile Hung Timber Frame Wall – Insulation Between Studs and Insulated Dry–lining

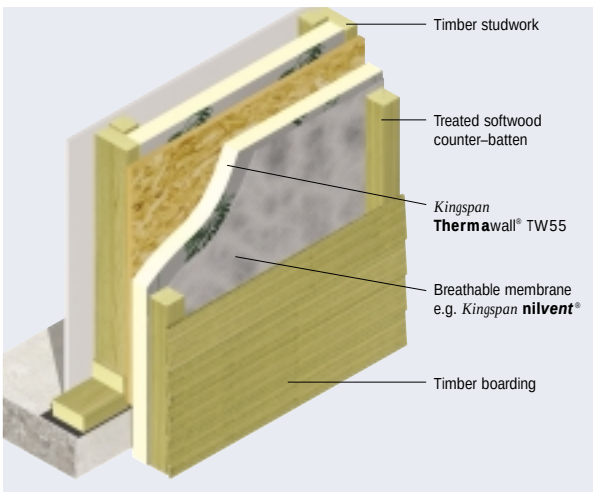


Figure 6 Timber Clad / Tile Hung Timber Frame Wall – Insulation Between Studs and Insulating Sheathing

Specification Clause

Kingspan **Therma**wall® TW55 should be described in specifications as:–

The stud wall insulation shall be *Kingspan* **Therma**wall® TW55 ___mm thick comprising a CFC/HCFC–free rigid urethane insulation core with composite foil facings on both sides manufactured to the highest standards under quality control systems approved to BS EN ISO 9001: 2000 / I.S. EN ISO 9001: 2000 by Kingspan Insulation Limited and shall be applied in accordance with the instructions issued by them.

Details also available in NBS Plus.
NBS users should refer to clause(s):
F30 155, P10 210
(Standard and Intermediate)
F30 12, P10 40 (Minor Works).

Design Considerations

Sustainability

In the past, erroneously, the relative environmental sustainability of insulation materials has been compared on the basis of embodied energy and ozone depletion potential. It is now recognised that a much wider basket of embodied environmental impacts (including those caused by their embodied energy), rather than embodied energy alone, is the only credible tool of comparison. Time has also annulled ozone depletion potential as an issue as all insulation materials are now banned from using CFC and HCFC blowing agents by law.

For buildings designed to today's Building Regulations energy use standards it is now also known that the embodied environmental impacts of all of the materials and labour used to create a building are insignificant in comparison with the lifetime operational environmental impacts of that building, and so are of very limited importance. Since it is operational energy use that creates the vast majority of operational environmental impact, saving energy by specifying the lowest U–values possible is the most environmentally sustainable action to take.

However, one of the most neglected facts about environmentally sustainable buildings is that the longevity of their standards of operational energy use, and therefore the longevity of their operational environmental impacts, is critical. The performance of some insulants, such as mineral fibre, can deteriorate rapidly if exposed to water penetration, air movement or compression. This may increase operational energy use and hence compromise the environmental sustainability of the finished building to an alarming degree. Other insulation materials, such as rigid phenolic or rigid urethane, are not vulnerable to any of these problems.

In summary, designers should:

(a) specify the lowest possible U–value regardless of insulation type;

(b) design out the risk of their chosen insulant not performing as specified; and

(c) if the latter is not possible, choose an insulant that is at low risk of failure e.g. a cellular plastic insulation material.

However, manufacturers should not rest on their laurels; it is a matter of social responsibility to be open and honest about the environmental impact of the manufacture of a product, and a full Life Cycle Analysis (LCA) based on a much wider basket of environmental impacts, rather than embodied energy alone, is recognised as the preferred tool to achieve this. Kingspan Insulation was the first insulation manufacturer to openly complete and publish independently certified Ecoprofiles (a type of LCA) on its product ranges. The Ecoprofile for the *Kingspan* **Therma**™ range of rigid urethane insulation products was performed by Building Research Establishment (BRE). The product range comfortably achieves a BRE Green Guide A rating.

But there is far more to sustainability than whether or not a product, process or company affects the environment in a positive or a negative way. A company can, and should, demonstrate its financial viability and social responsibility, as well as ensure that its materials and methods do not add unduly to the burden placed on the planet.

Kingspan Insulation has now put the manufacture of its products at its Pembridge facility in Herefordshire through a rigorous independent appraisal of its economic, social, environmental and natural resource impacts using Arup's SPeAR® tool.

The results show a well balanced performance in terms of sustainability, and that Kingspan Insulation is already meeting legislation or best practice in most areas, even moving beyond best practice in some. Kingspan Insulation is the first and only construction material manufacturer to have taken this bold move and openly publish the results.

Typical Applications

Kingspan **Therma**wall® TW55 may be installed either between or outside timber studwork. The insulation boards are easily cut to individual studwork spacings. Once installed, *Kingspan* **Therma**wall® TW55 can exceed Building Regulations / Standards requirements for these applications.

Cold Bridging

When installed between timber studwork, the effects of cold bridging must be taken into account. In most cases this can represent up to 15% of the external surface area of the building which will significantly affect the overall U–value.

The problem is avoided when insulating outside or inside the studwork. By insulating the entire building envelope, or lining internally with insulation, the problem of cold bridging can be eliminated completely.

Water Vapour Control

Surface Condensation

Surface condensation can be controlled by the selection of the correct thickness of insulation, the heating and ventilation system being designed with condensation in mind, and subsequently the combination of heating and ventilation being used correctly.

Interstitial Condensation

The Kingspan Insulation Technical Service Department (see rear cover) can provide a condensation risk analysis of your proposed design. Alternatively, the designer can undertake an independent assessment by following the procedures set out in BS 5250: 2002 (Code of practice for the control of condensation in buildings).

The vapour resistance of the wall lining can be increased by the use of a vapour check plasterboard or by the application of two coats of Gyproc Drywall Sealer, if required.

Fire Stops

Current Building Regulations / Standards should be considered with regard to the requirements for and provision of fire stops.

Typical U-values

The following examples have been calculated using the Combined Method for compliance with Building Regulations / Standards revised after 2002. The timber frame U–values quoted are based on a construction comprising a 3 mm plaster skim on 15 mm plasterboard, 89 mm deep timber studwork with a 9 mm OSB sheathing board and the external finish as specified. The steel frame U–values are based on a 100 mm deep structural steel frame with studs at 600 mm centres and the external finish as specified. If your construction is any different, please contact the Kingspan Insulation Technical Service Department (see rear cover).

Combined Method – U–values were calculated using the method which has been adopted to bring National standards in line with the European Standard calculation method, BS / I.S. EN ISO 6946: 1997 (Building components and building elements. Thermal resistance and thermal transmittance. Calculation method).

NB When calculating U–values to BS / I.S. EN ISO 6946: 1997, the type of mechanical fixing used may change the thickness of insulation required. For the purposes of timber frame calculations which feature insulating sheathing the use of stainless steel fasteners of cross sectional area 7.45 mm² has been assumed at a rate of 4.4 per m². For steel frame calculations featuring insulating sheathing the use of carbon steel fasteners of cross sectional area 14.8 mm² has been assumed at a rate of 4.5 per m². Please contact the Kingspan Insulation Technical Service Department (see rear cover) for project calculations.

NB For the purposes of timber frame calculations which feature insulation between studs a 15% bridging factor has been taken to account for the thermal bridge incurred, in accordance with BR 443. The thermal conductivity of the timber has been assumed at 0.12 W/m·K.

NB For the purposes of these calculations the standard of workmanship has been assumed good and therefore the correction factor for air gaps has been ignored.

NB The figures quoted are for guidance only. A detailed U–value calculation together with condensation risk analysis should be completed for each individual project. Please contact the Kingspan Insulation Technical Service Department (see rear cover) for assistance.

External Masonry – Timber Frame Wall with Insulating Sheathing

Insulant Thickness	U–value (W/m²·K)	
(mm)	Facing Brickwork	Facing Blockwork
25	0.41	0.40
30	0.38	0.36
35	0.35	0.34
40	0.32	0.31
45	0.30	0.29
50	0.28	0.28
55	0.27	0.26
60	0.25	0.25
65	0.24	0.23

NB Calculations assume an outer leaf of either 102.5 mm brickwork or a 20 mm render coat on 100 mm medium density blockwork of thermal conductivity 0.51 W/m·K.

External Masonry – Steel Frame Wall with Insulating Sheathing

Insulant Thickness	U–value (W/m²·K)	
(mm)	Facing Brickwork	Facing Blockwork
25	0.40	0.39
30	0.37	0.36
35	0.35	0.34
40	0.33	0.32
45	0.31	0.30
50	0.29	0.28
55	0.27	0.27
60	0.26	0.25
65	0.25	0.24

NB Calculations assume an outer leaf of either 102.5 mm brickwork or a 20 mm render coat on 100 mm medium density blockwork of thermal conductivity 0.51 W/m·K.

External Masonry – Timber Frame Wall with Insulation Between Studs (Utilising Foil Faced Breathable Membrane)

Insulant Thickness	U–value (W/m²·K)	
(mm)	Facing Brickwork	Facing Blockwork
35	0.37	0.36
40	0.35	0.34
45	0.34	0.33
50	0.32	0.31
55	0.31	0.30
60	0.30	0.29
65	0.29	0.28
70	0.28	0.28

NB Calculations assume an outer leaf of either 102.5 mm brickwork or a 20 mm render coat on 100 mm medium density blockwork of thermal conductivity 0.51 W/m·K.

NB If insulation is installed solely between studwork a vapour check plasterboard or a separate vapour control layer should be used in order to minimise the risk of pattern staining. See 'Water Vapour Control'.

NB Calculations assume the use of a foil faced breathable membrane yielding an airspace thermal resistance of 0.54 m²·K/W.

Dwarf Walls – Insulation Between Studs

Insulant Thickness (mm)	U–value (W/m²·K)
50	0.46
60	0.40
70	0.35
75	0.33
80	0.32
90	0.29
100	0.26
105	0.25

NB Calculations assume a ventilated pitched roof with insulation between vertical timber studs at 600 mm centres.

NB If insulation is installed solely between studwork a vapour check plasterboard or a separate vapour control layer should be used in order to minimise the risk of pattern staining. See 'Water Vapour Control'.

Timber Clad / Tile Hung Timber Framed Wall – Insulating Sheathing

Product Thickness (mm)	U–value (W/m²·K)
40	0.42
45	0.38
50	0.35
60	0.31
65	0.29
70	0.27
75	0.26
80	0.24

Timber Clad / Tile Hung Timber Frame Wall – Insulation Between Studs

Product Thickness (mm)	U–value (W/m²·K)
35	0.48
40	0.45
45	0.43
50	0.41
60	0.38
65	0.36
70	0.35

NB If insulation is installed solely between studwork a vapour check plasterboard or a separate vapour control layer should be used in order to minimise the risk of pattern staining. See 'Water Vapour Control'.

70 mm *Kingspan* **Therma**wall® TW55 is the maximum practical thickness for installation between 89 mm deep timber studs whilst maintaining a minimum service void. For U–values below 0.35 W/m·K there are three options:

Option 1
Insulation Between Studs & Insulated Dry–lining

Product Thickness* (mm)	U–value (W/m²·K)
32.5	0.26
37.5	0.25

**Product thickness = 12.5 mm plasterboard + 20 mm rigid phenolic insulation of thermal conductivity 0.024 W/m·K.*

NB Calculations assume 70 mm Kingspan Thermawall TW55 between studs. Thickness shown is only the dry–lining component.

Option 2
Insulation Between Studs & Insulating Sheathing

Product Thickness (mm)	U–value (W/m²·K)
25+25	0.34
25+30	0.32
30+30	0.30
35+35	0.27
40+40	0.25

NB First thickness refers to thickness between studs, second thickness sheathing.

NB The thermal resistance of the sheathing insulation must be ≥ that of the insulation between the studs so as to avoid condensation.

Option 3
Insulation Between Studs – Deeper Studwork

Product Thickness (mm)	U–value (W/m²·K)
75	0.34
80	0.32
85	0.31
90	0.29
95	0.28
100	0.27
105	0.26
110	0.25

NB Calculations assume timber stud depth to be 19 mm greater than insulation thickness.

NB If insulation is installed solely between studwork a vapour check plasterboard or a separate vapour control layer should be used in order to minimise the risk of pattern staining. See 'Water Vapour Control'.

Sitework

External Masonry – Timber Frame Wall with Insulating Sheathing

Kingspan **Therma**wall® TW55 should be fixed to the external surface of the timber frame structure (outside of any OSB or plywood sheathing) and restrained using temporary fixing in the form of large headed galvanised clout nails prior to being tied into the brickwork with an appropriate timber frame wall tie. Ensure that *Kingspan* **Therma**wall® TW55 boards are tightly butted and that any requirements of the timber frame manufacturer are met. Please contact the Kingspan Insulation Technical Service Department (see rear cover) for further information.

Wall Ties – Timber Frame Wall

The outer leaf of brickwork may be constructed in the conventional manner using appropriate wall ties to restrain the two wall skins together. The ties should be inserted whilst constructing the outer leaf ensuring a slight offset is achieved, sloping the tie downwards towards the outer leaf.

External Masonry – Steel Frame Wall with Insulating Sheathing

Similarly fixed as for 'Timber Frame', *Kingspan* **Therma**wall® TW55 should be restrained to the outside of the steel frame construction ensuring vertical board joints coincide with a vertical member. Fixings should be in accordance with the steel frame manufacturer's recommendations. Please contact the Kingspan Insulation Technical Service Department (see rear cover) for further information.

Wall Ties – Steel Frame Wall

Advice should be sought from the appropriate steel frame manufacturer for recommendations of a suitable wall tie specification.

External Masonry – Timber Frame Wall with Insulation Between Studs

To restrain insulation boards from moving within the timber stud cavity, side nail battens to the stud to provide a 'stop'. This should coincide with board thickness, allowing *Kingspan* **Therma**wall® TW55 to finish flush with the outside surface of the timbers.

Insulation boards that have been individually cut to fit the stud spacings may be temporarily held to the battens with large headed clout nails. An additional restraint to the boards will be provided by a plasterboard lining fixed to the inside face of the timbers. When utilising *Kingspan* **Therma**wall® TW55 between studwork, the plasterboard lining should be of the vapour check type or a separate polythene vapour control layer should be used.

Ensure there is a tight fit between *Kingspan* **Therma**wall® TW55 insulation boards and the adjoining structure. Fill all gaps with expanding urethane sealant.

Dwarf Wall – Insulation Between Studs

To restrain insulation boards from moving within the timber stud cavity, side nail battens to the stud to provide a 'stop'. This should coincide with board thickness, allowing the *Kingspan* **Therma**wall® TW55 to finish flush with the inside surface of the timbers.

Insulation boards that have been individually cut to fit the stud spacings may be temporarily held to the battens with large headed clout nails. An additional restraint to the boards will be provided by a plasterboard lining fixed to the inside face of the timbers. When utilising *Kingspan* **Therma**wall® TW55 between studwork, the plasterboard lining should be of the vapour check type or a separate polythene vapour control layer used.

Ensure there is a tight fit between *Kingspan* **Therma**wall® TW55 insulation boards and the adjoining structure. Fill all gaps with expanding urethane sealant.

Timber Clad / Tile Hung Timber Frame Wall – Insulating Sheathing

Where the intended external cladding is to be timber boarding, *Kingspan* **Therma**wall® TW55 boards are temporarily pinned in place with all joints tightly butted.
A breathable membrane e.g. *Kingspan* **nil*vent***® is applied over the insulation boards and temporarily stapled or pinned in place. Preservative treated softwood counter–battens are fixed vertically to the wall structure at 600 mm centres. The timber boarding system is then fixed to the counter–battens.
The counter–battens should be fixed at centres to coincide with the timber wall studs. Application advice should be sought from the appropriate membrane manufacturer. Timber boarding should be secured in accordance with the boarding manufacturer's recommendations.

Timber Clad / Tile Hung Timber Frame Wall – Insulation Between Studs

To restrain insulation boards from moving within the timber stud cavity, side nail battens to the stud to provide a 'stop'. This should coincide with board thickness, allowing the *Kingspan* **Therma**wall® TW55 to finish flush against the inside surface of the timbers. When utilising *Kingspan* **Therma**wall® TW55 between studwork, the plasterboard lining should be of the vapour check type or a separate vapour control layer used.

A breathable membrane e.g. *Kingspan* **nil*vent***® is applied temporarily stapled or pinned in place. Preservative treated softwood counter–battens are fixed vertically to the wall structure at 600 mm centres. Horizontal tile battens are then fixed to the counter–battens to carry the tile hanging system. The counter–battens should be fixed at centres to coincide with the timber frame wall studs. Application advice should be sought from the appropriate membrane manufacturer. Tile hanging should be secured in accordance with the boarding manufacturer's recommendations.

Ensure there is a tight fit between *Kingspan* **Therma**wall® TW55 Framing Board and the adjoining structure. Fill all gaps with expanding urethane sealant

Tile Hanging

Where the intended external cladding is to be wall tiling, preservative treated softwood counter–battens should be fixed vertically to coincide with the timber studs utilising appropriate fasteners.

Tile hanging should be secured in accordance with the tile manufacturer's recommendations.

Insulated Dry–lining

Please refer to literature for *Kingspan* **Kool**therm® K18 Insulated Dry–lining Board, available from the Kingspan Insulation Marketing Department (see rear cover).

Cutting

Cutting should be carried out either by using a fine toothed saw, or by scoring with a sharp knife, snapping the board over a straight edge and then cutting the facing on the other side. Ensure accurate trimming to achieve close butting joints and continuity of insulation.

Availability

Kingspan **Therma**wall® TW55 is available through specialist insulation distributors and selected builders' merchants throughout the UK, Ireland and Europe.

Packaging

The boards are supplied in labelled packs, shrinkwrapped in polythene.

Storage

The packaging of *Kingspan* **Therma**wall® TW55 should not be considered adequate for long term outdoor protection. Ideally, boards should be stored inside a building. If, however, outdoor storage cannot be avoided then the boards should be stacked clear of the ground and covered with a polythene sheet or weatherproof tarpaulin. Boards that have been allowed to get wet should not be used.

Health and Safety

Kingspan Insulation products are chemically inert and safe to use. A leaflet on this topic which satisfies the requirements set out in the Control of Substances Hazardous to Health Regulations 1988 (COSHH) is available from the Kingspan Insulation Marketing Department (see rear cover).

Please note that the reflective surface on this product is designed to enhance its thermal performance. As such, it will reflect light as well as heat, including ultraviolet light. Therefore, if this board is being installed during very bright or sunny weather, it is advisable to wear UV protective sunglasses or goggles, and if the skin is exposed for a significant period of time, to protect the bare skin with a UV block sun cream.

The reflective facing used on this product can be slippery when wet. Therefore, it is recommended that any excess material should be contained to avoid a slip hazard.

Warning – do not stand on or otherwise support your weight on this board unless it is fully supported by a load bearing surface.

Product Description

The Facings

Kingspan **Therma**wall® TW55 is faced on both sides with a low emissivity composite foil facing which is highly resistant to the transmission of water vapour. This reflective, low emissivity surface can effectively double the thermal resistance of the cavity in which the board is placed.

The Core

The core of *Kingspan* **Therma**wall® TW55 is manufactured from trademarked **Nil**flam® technology (a high performance CFC/HCFC–free polyisocyanurate (PIR) based formulation). *Kingspan* **Therma**wall® TW55 has a typical density of 32 kg/m^3.

CFC/HCFC–free

Kingspan **Therma**wall® TW55 is manufactured without the use of CFCs/HCFCs and has zero Ozone Depletion Potential (ODP).

zero O.D.P

Product Data

Standards and Approvals

Kingspan **Therma**wall® TW55 is manufactured to the highest standards under quality control systems approved to BS EN ISO 9001: 2000 / I.S. EN ISO 9001: 2000 (Quality management systems. Requirements).

Manufactured to BS EN ISO 9001: 2000
Certificate No. 388

I.S. EN ISO 9001: 2000
Registration No. 19.0633

Standard Dimensions

Kingspan **Therma**wall® TW55 is available in the following standard size:

Nominal Dimension		Availability
Length	(m)	2.4
Width	(m)	1.2*
Insulant Thickness	(mm)	Refer to local distributor or Kingspan Insulation price list for current stock and non–stock sizes.

Kingspan* **Thermawall® TW55 *is available in other widths subject to quantity. Extended lead times and price premium will apply.*

Compressive Strength

Typically exceeds 140 kPa at 10% compression when tested to BS EN 826: 1996 (Thermal insulating products for building applications. Determination of compression behaviour).

Water Vapour Resistance

Modified to include board facings, the boards achieve a resistance far greater than 100 MN·s/g, when tested in accordance with BS 4370–2: 1993 (Methods of test for rigid cellular materials. Methods 7 to 9). Where additional vapour control is required an appropriate surface treatment should be applied over the completed insulated wall area (refer to 'Water Vapour Control').

Durability

If correctly applied, *Kingspan* **Therma**wall® TW55 has an indefinite life. Its durability depends on the supporting structure and the conditions of its use.

Resistance to Solvents, Fungi & Rodents

The insulation core is resistant to short–term contact with petrol and with most dilute acids, alkalis and mineral oils. However, it is recommended that any spills be cleaned off fully before the boards are installed. Ensure that safe methods of cleaning are used, as recommended by the suppliers of the spilt liquid. The insulation core is not resistant to some solvent–based adhesive systems, particularly those containing methyl ethyl ketone. Adhesives containing such solvents should not be used in association with this product. Damaged boards or boards that have been in contact with harsh solvents or acids should not be used.

Fire Performance

Kingspan **Therma**wall® TW55 achieves the result as shown, when tested in the following construction to BS 476–21: 1987 (Fire tests on building materials and structures. Methods for determination of the fire resistance of loadbearing elements of construction).

Construction	Result
12.5 mm plasterboard, 60 mm *Kingspan* **Therma**wall® TW55 between 89 x 38 mm timber studs @ 600 mm centres and 9 mm OSB sheathing.	Passed half hour test – achieved 36 minutes insulation and integrity.
12.5 mm fire resistant wall board, 12.5 mm plasterboard, 60 mm *Kingspan* **Therma**wall® TW55 between 89 x 38 mm timber studs @ 600 mm centres and 10 mm OSB sheathing.	Passed one hour test – achieved 73 minutes insulation and integrity.
12.5 mm fire resistant wall board, 89 x 38 mm timber studs @ 600 mm centres, 9 mm OSB sheathing and 45 mm *Kingspan* **Therma**wall® TW55 as sheathing.	Passed half hour test – achieved 36 minutes insulation and integrity.
12.5 mm fire resistant wall board, 75 x 43 mm metal studs @ 600 mm centres and 35 mm *Kingspan* **Therma**wall® TW55 as sheathing.	Passed half hour test – achieved 36 minutes insulation and integrity.
12.5 mm fire resistant wall board, 12.5 mm plasterboard, 100 mm deep metal studs @ 600 mm centres and 45 mm *Kingspan* **Therma**wall® TW55 as sheathing.	Passed one hour test – achieved 67 minutes insulation and integrity.

Kingspan **Therma**wall® TW55, when subjected to British Standard fire tests, achieves the results given below.

Test	Result
BS 476–7: 1997 (Fire tests on building materials and structures. Method of test to determine the classification of the surface spread of flame of products)	Class 1 rating

Further details of the fire performance of Kingspan Insulation products may be obtained from the Kingspan Insulation Technical Service Department (see rear cover).

Thermal Properties

The λ–values and R–values quoted are in accordance with the Harmonised European Standard BS EN 13165: 2001 (Thermal insulation products for buildings – Factory made rigid polyurethane foam (PUR) products – Specification) using so called 90 / 90 principles. Comparison with alternative products may not be appropriate unless the same procedures have been followed.

Thermal Conductivity

The boards achieve a thermal conductivity (λ–value) of 0.023 W/m·K.

Thermal Resistance

Thermal resistance (R–value) varies with thickness and is calculated by dividing the thickness of the board (expressed in metres) by its thermal conductivity.

Insulant Thickness (mm)	Thermal Resistance (m^2·K/W)
20	0.90
25	1.10
30	1.35
35	1.50
40	1.70
45	1.95
50	2.15
55	2.35
60	2.60
65	2.80
70	3.00
75	3.25
80	3.45
85	3.65
90	3.90
95	4.10
100	4.30
105	4.55

Refer to local distributor or Kingspan Insulation price list for current stock and non–stock sizes.

Kingspan Insulation

Kingspan Insulation offers an extensive range of premium and high performance insulation products, breathable membranes and pre–insulated systems for the construction industry. Following an extensive investment programme, Kingspan Insulation is continuing to lead the insulation industry by manufacturing its insulation products with zero Ozone Depletion Potential (ODP) and quoting thermal performance data in accordance with the new harmonised European Standards.

Kingspan Insulation Limited specialises in the solution of insulation problems. The Kingspan Insulation range of insulation products meet the exacting requirements of the construction industry and are produced to the highest standards, including BS EN ISO 9001: 2000 / I.S. EN ISO 9001: 2000. Each product has been designed to fulfil a specific need and has been manufactured to precise standards and tolerances.

Insulation for:

- Pitched Roofs
- Flat Roofs
- Cavity Walls
- Timber and Steel Framing
- Externally Insulated Cladding Systems
- Floors
- Soffits

Solutions:

- Insulated Dry–Lining
- Tapered Roofing Systems
- *Kingspan* **Kool**Duct® Pre–Insulated Ducting
- *Kingspan* **nil*vent***® Breathable Membranes

The Kingspan Insulation Product Range

The *Kingspan* Kooltherm® **K–range**

- With a thermal conductivity of 0.021–0.024 W/m·K CFC/HCFC–free rigid phenolic insulation is the most thermally efficient insulation product commonly available.
- Utilises the thinnest possible insulation board to achieve required U–values.
- Fire performance can be equivalent to mineral fibre.
- Achieves a Class 0 fire rating to the Building Regulations and Low Risk rating for the Technical Standards in Scotland.
- Achieves the best possible rating of < 5% smoke obscuration when tested to BS 5111: Part 1: 1974.
- CFC/HCFC–free with zero Ozone Depletion Potential (ODP).

The *Kingspan* Therma™ Range

- With a thermal conductivity of 0.023–0.028 W/m·K CFC/HCFC–free rigid urethane insulation is one of the most thermally efficient insulation products commonly available.
- Easily achieves required U–values with minimum board thickness.
- Achieves the required fire performance for the intended application.
- CFC/HCFC–free with zero Ozone Depletion Potential (ODP).

The *Kingspan* Styrozone® **& Purlcrete® Ranges**

- Rigid extruded polystyrene insulation (XPS) has the highest compressive strength of any commonly available insulant.
- Ideal for specialist applications such as inverted roofing and heavy–duty flooring.
- Easily achieves required U–values with minimum board thickness.
- Achieves the required fire performance for the intended application.
- CFC/HCFC–free with zero Ozone Depletion Potential (ODP).

All Products

- Their closed cell structure resists both moisture and water vapour ingress – problems which can be associated with open cell materials such as mineral fibre and which can result in reduced thermal performance.
- Unaffected by air movement – problems that can be experienced with mineral fibre and which can reduce thermal performance.
- Safe and easy to install – non–fibrous.
- Provide reliable long term thermal performance over the lifetime of the building.

Contact Details

Customer Service

For quotations, order placement and details of despatches please contact the Kingspan Insulation Customer Service Department on the numbers below:

UK – Tel: +44 (0) 870 850 8555
– Fax: +44 (0) 870 850 8666
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Ireland – Tel: +353 (0) 42 97 54200
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Literature & Samples

Kingspan Insulation produces a comprehensive range of technical literature for specifiers, contractors, stockists and end users. The literature contains clear 'user friendly' advice on typical design; design considerations; thermal properties; sitework and product data.

Available as a complete Design Manual or as individual product brochures, Kingspan Insulation technical literature is an essential specification tool. For copies please contact the Kingspan Insulation Marketing Department on the numbers below:

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Tapered Roofing

For technical guidance, quotations, order placement and details of despatches please contact the Kingspan Insulation Tapered Roofing Department on the numbers below:

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Technical Advice / Design

Kingspan Insulation supports all of its products with a comprehensive Technical Advisory Service for specifiers, stockists and contractors.

This includes a computer–aided service designed to give fast, accurate technical advice. Simply phone the Kingspan Insulation Technical Service Department with your project specification. Calculations can be carried out to provide U–values, condensation / dew point risk, required insulation thicknesses etc… Thereafter any number of permutations can be provided to help you achieve your desired targets.

The Kingspan Insulation Technical Service Department can also give general application advice and advice on design detailing and fixing etc... Site surveys are also undertaken as appropriate.

Please contact the Kingspan Insulation Technical Service Department on the numbers below:

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