STANDARD DETAILS FOR 50 MM INSULATION BOARD IN A 100 MM CAVITY
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Heat Loss from Junctions

Thermal bridging occurring at the junctions of a building’s planar elements (i.e., between roofs, walls, openings and floors) can add significantly to a building’s total fabric heat loss.

Higher heat flows occur at junctions due to complex geometries, or from the use of materials with a higher thermal conductivity than the adjacent materials. This can cause localised reductions of internal surface temperatures, which can lead to surface condensation and mould growth problems. Good design detailing can help to avoid these issues. The details in this guidance have been developed with the aims of being buildable, achieving good thermal performance and minimising risk.

Linear thermal bridging describes the heat-loss occurring at junctions between elements e.g., between a wall and floor, or around openings e.g., at sills, lintels and jambs. A ψ-value (psi-value) is the heat loss through a junction, which is additional to the heat flow through the adjoining plane elements, and is measured in W/m².K.

ψ-values are not taken into account in U-value calculations, but, instead, they are taken into account separately in the calculation methodologies used to assess the operational CO₂ emissions of buildings e.g., SAP in the UK for domestic purposes, or SBEM for non-domestic.

Junctions & Building Compliance

There are three possibilities for specifying thermal bridging:

a. details conform with Approved Design Details or another government approved source involving independent assessment of the construction method. In this case, use ψ-values from the approved column on Table K1, or from the approved source;

b. ψ-values calculated by a person with suitable expertise and experience in accordance with BRE IP 1/06 and BR 497 (Conventions for Calculating Linear Thermal Transmittance and Temperature Factors). In this case, use those calculated ψ-values along with the length of each junction; or

c. if neither of the above applies, use a global default value for overall heat losses in the energy calculation to take account of the heat loss due to thermal bridging (a value of 0.15 W/m².K is added to overall elemental losses, making it harder to achieve compliance).

A combination of details from a. and b. above can be used and where some details are missing, the ψ-values from the ‘default’ column in Table K1 can be used.

The ψ-values in this document have all been calculated by persons with suitable expertise and experience as per the second of the above options.

Thermal Modelling of Junctions

ψ-values have been created for the major junctions involving Kingspan ThermaWall® TW50, following the guidelines in BR 497.

All thermal modelling work was undertaken by Competent Thermal Modellers (who have successfully completed training and portfolios with ACD Certification Ltd and are experienced in thermal modelling of junction heat losses) on behalf of Kingspan Insulation Ltd.

The assessors who undertook the thermal modelling in this document are:

- Mr Jonathan Ducker
- Miss Samantha Lloyd
- Miss Hannah Etheridge

All of the calculated ψ-values for the Kingspan Insulation junction details are better than the default ψ-values for the accredited details as given in BRE IP 1/06 and Table K1 of SAP 2012.
Critical Temperature Factors

Reasonable provision to avoid surface condensation, or mould growth occurring as a result of thermal bridges, is to demonstrate that details achieve a temperature factor that is no worse than the performance set out in BRE IP 1/06.

The temperature factor is a property of the construction, surface resistances and internal and external temperatures. It is used to assess the risk of surface condensation or mould growth. This parameter has been provided for all of the junction variants.

In all cases the calculated values are higher than the critical temperature factor for dwellings ($f_{CRsi}$ of 0.75) as given in BRE IP 1/06, which limits the risk of surface condensation or mould growth. Higher humidity condition buildings, for example swimming pools ($f_{CRsi}$ of 0.90), may require alternative details and constructions.

All of the modelled Kingspan Therma® TW50 details achieve acceptable temperature factors.

Calculation Methodology

The thermal modelling of the Kingspan Therma® TW50 details was undertaken using two transient and steady–state heat transfer software packages produced by Blocon (as appropriate for the detail). HEAT 2 was used for the two–dimensional details and HEAT 3 for the three–dimensional details.

The modelled U–values and underfloor temperatures for suspended and beam and block floors were determined using the STROMA U–value calculator.

Junctions were modelled using a 50 mm thickness of Kingspan Therma® TW50 in an overall 100 mm cavity (with a 50 mm residual cavity air–space) and with a variety of internal leaf blockwork types, including three variations of light–weight blockwork (0.11 W/m.K, 0.15 W/m.K and 0.19 W/m.K), a version with medium dense blockwork (0.51 W/m.K) and one with dense blockwork (1.13 W/m.K).

How to Use these Details

Additional modelling was undertaken, which looked at various external leaf and internal finishes (see section below).

The detail sheets include a process sequence and also guidance on how to achieve a good level of air–tightness.

The ψ–values and temperature factors are provided for different bands of internal leaf blockwork conductivity. Where a different conductivity blockwork is used, performance can be inferred from the poorest closest blockwork modelled.

The ψ–values cited may be used in calculations of building heat loss, where the principles of construction and key element specifications have been followed.

Limitations & Applicability of Modelling

The ψ–values could be reasonably used whenever the external leaf of the construction is constructed either from external brickwork, or stonework, or where the external leaf is rendered blockwork, with the external leaf being not less than 100 mm in thickness. The ψ–values can also be considered to be valid to two significant figures where the internal finish is either plaster or plasterboard on dabs, with or without skim.

For junctions around openings (windows and doors), variants have been included covering a 30 mm overlap (between the window frame and the cavity) and a full overlap (between the frame and cavity), or for a check reveal. Options for both full overlap and for a check reveal were thermally modelled and as the results were very similar, these details reflect the worst case result of the two.

Calculated ψ–values can be used by energy assessors for buildings constructed in accordance with associated details in England, Scotland, Wales and Northern Ireland.

Where proposed constructions significantly differ from the enclosed process sequences, or use alternative materials, these ψ–values and temperature factors should not be used.

These details represent typical detailing to achieve a good level of thermal performance, however the details included in this document may not be suitable for use in all circumstances. Where there is any uncertainty, Building Control Body (BCB) requirements and advice should always be sought and followed. All other site requirements and relevant building regulations must be taken into consideration when implementing the details.
E1 - Open Back Lintel (Insulated) with Perforated Steel Base Plate

**General Construction Specification:**
- wall lining;
- inner leaf blockwork;
- *Kingspan Therma*wall® TW50 50 mm with 50 mm cavity; and
- outer leaf brickwork.

**U-value Range:**
- 0.24 W/m²·K (0.11 W/m·K block);
- 0.25 W/m²·K (0.15 W/m·K block);
- 0.26 W/m²·K (0.19 W/m·K block);
- 0.28 W/m²·K (0.51 W/m·K block); and
- 0.29 W/m²·K (1.13 W/m·K block).

**Thermal Performance Process Sequence:**
- Ensure *Kingspan Therma*wall® TW50 boards are in contact with the lintel.
- Ensure there are no gaps between *Kingspan Therma*wall® TW50 boards.
- For normal reveals, ensure the window / door frame overlaps the insulated lintel by no less than 30 mm (take values from the first two rows of the table below).
- For fully overlapped / checked reveals, ensure the window / door frame overlaps the insulated lintel fully / by no less than 80 mm (take values from the last two rows of the table below).
- *Kingspan Therma*wall® TW50 boards should be firmly held against the inner leaf of blockwork.
- The cavity and wall ties should be kept clean of mortar or other debris during construction.

**Air Barrier Process Sequence:**
- Seal the joint between the window frame and the internal linings.
- Apply flexible sealant to all interfaces between the internal air barrier and the window / door frame.
- Seal all penetrations through the air barrier using a flexible sealant.

**Detail:**

<table>
<thead>
<tr>
<th>Internal Blockwork Conductivity (W/m·K)</th>
</tr>
</thead>
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<tr>
<td>Description</td>
</tr>
<tr>
<td>Normal 30 mm Overlap*</td>
</tr>
<tr>
<td>Linear Thermal Transmittance $\Psi$ (W/m·K)</td>
</tr>
<tr>
<td>Temperature Factor (f)</td>
</tr>
<tr>
<td>Full Overlap (Incl. Checked Reveal)**</td>
</tr>
<tr>
<td>Linear Thermal Transmittance $\Psi$ (W/m·K)</td>
</tr>
<tr>
<td>Temperature Factor (f)</td>
</tr>
</tbody>
</table>

* Normal – 30 mm overlap between an 80 mm frame and 100 mm cavity.
** Full overlap / checked reveal – 80 mm overlap between an 80 mm frame and 100 mm cavity. Where full overlap and checked reveal values differ, the poorer value has been taken. See page 51 for further details.
Flexible sealant
Inner leaf blockwork
Proprietary insulated lintel
Cavity Tray DPC
Perpend weep holes
Wall tie with retaining clip
25 mm / 50 mm residual cavity
Kingspan Thermawall TW50
Outer leaf brickwork
Wall lining
Wall lining
Wall lining
Inner leaf blockwork
Inner leaf blockwork
Cavity Tray DPC
Cavity Tray DPC
Proprietary insulated lintel
Proprietary insulated lintel
Flexible sealant
Flexible sealant
Flexible sealant
E1 - Open Back Lintel (Uninsulated) with Perforated Steel Base

General Construction Specification:
- wall lining;
- inner leaf blockwork;
- *Kingspan Therma*wall® TW50 50 mm with 50 mm cavity; and
- outer leaf brickwork.

U-value Range:
- 0.24 W/m²K (0.11 W/m.K block);
- 0.25 W/m²K (0.15 W/m.K block);
- 0.26 W/m²K (0.19 W/m.K block);
- 0.28 W/m²K (0.51 W/m.K block); and
- 0.29 W/m²K (1.13 W/m.K block).

Thermal Performance Process Sequence:
- Ensure *Kingspan Therma*wall® TW50 boards are in contact with the lintel.
- Ensure there are no gaps between *Kingspan Therma*wall® TW50 boards.

- For normal reveals, ensure the window / door frame overlaps the lintel by no less than 30 mm (take values from the first two rows of the table below).
- For fully overlapped / checked reveals, ensure the window / door frame overlaps the insulated lintel fully / by no less than 80 mm (take values from the last two rows of the table below).
- *Kingspan Therma*wall® TW50 boards should be firmly held against the inner leaf of blockwork.
- The cavity and wall ties should be kept clean of mortar or other debris during construction.

Air Barrier Process Sequence:
- Seal the joint between the window frame and the internal linings.
- Apply flexible sealant to all interfaces between the internal air barrier and the window / door frame.
- Seal all penetrations through the air barrier using a flexible sealant.

**Detail:**

<table>
<thead>
<tr>
<th>Description</th>
<th>Internal Blockwork Conductivity (W/m-K)</th>
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</thead>
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<td><strong>Linear Thermal Transmittance (W/m-K)</strong></td>
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<td><strong>Temperature Factor (f)</strong></td>
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<tr>
<td>Full Overlap (Incl. Checked Reveal)**</td>
<td>0.907</td>
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* Normal – 30 mm overlap between an 80 mm frame and 100 mm cavity.
** Full overlap / checked reveal – 80 mm overlap between an 80 mm frame and 100 mm cavity. Where full overlap and checked reveal values differ, the poorer value has been taken.

See page 51 for further details.
Flexible sealant

Inner leaf blockwork

Outer leaf brickwork

Proprietary uninsulated lintel

Cavity Tray DPC

Perpend weep holes

25 mm / 50 mm residual cavity

Wall tie with retaining clip

Wall lining

Kingspan Thermawall TW50

25 mm / 50 mm residual cavity

Flexible sealant

Flexible sealant
E2 - Open Back Lintel (Insulated) without Base Plate

**General Construction Specification:**
- wall lining;
- inner leaf blockwork;
- *Kingspan Therma*wall® TW50 50 mm with 50 mm cavity; and
- outer leaf brickwork.

**U-value Range:**
- 0.24 W/m²-K (0.11 W/m·K block);
- 0.25 W/m²-K (0.15 W/m·K block);
- 0.26 W/m²-K (0.19 W/m·K block);
- 0.28 W/m²-K (0.51 W/m·K block); and
- 0.29 W/m²-K (1.13 W/m·K block).

**Thermal Performance Process Sequence:**
- Ensure *Kingspan Therma*wall® TW50 boards are in contact with the lintel.
- Ensure there are no gaps between *Kingspan Therma*wall® TW50 boards.
- For normal reveals, ensure the window / door frame overlaps the insulated lintel by no less than 30 mm (take values from the first two rows of the table below).
- For fully overlapped / checked reveals, ensure the window / door frame overlaps the insulated lintel fully / by no less than 80 mm (take values from the last two rows of the table below).
- *Kingspan Therma*wall® TW50 boards should be firmly held against the inner leaf of blockwork.
- The cavity and wall ties should be kept clean of mortar or other debris during construction.

**Air Barrier Process Sequence:**
- Seal the joint between the window frame and the internal linings.
- Apply flexible sealant to all interfaces between the internal air barrier and the window / door frame.
- Seal all penetrations through the air barrier using a flexible sealant.

**Detail:**

<table>
<thead>
<tr>
<th>Description</th>
<th>0.11</th>
<th>0.15</th>
<th>0.19</th>
<th>0.51</th>
<th>1.13</th>
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<td>Normal 30 mm Overlap*</td>
<td>Linear Thermal Transmittance Ψ (W/m·K)</td>
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<td>Temperature Factor (f)</td>
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<td>0.938</td>
<td>0.921</td>
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<tr>
<td>Full Overlap (Incl. Checked reveal)**</td>
<td>Linear Thermal Transmittance Ψ (W/m·K)</td>
<td>0.141</td>
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<td>0.960</td>
<td>0.942</td>
<td>0.936</td>
<td>0.918</td>
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</table>

* Normal – 30 mm overlap between an 80 mm frame and 100 mm cavity.
** Full overlap / checked reveal – 80 mm overlap between an 80 mm frame and 100 mm cavity. Where full overlap and checked reveal values differ, the poorer value has been taken. See page 51 for further details.
Flexible sealant

Inner leaf blockwork

Proprietary insulated lintel

Cavity Tray DPC

Perpend weep holes

Kingspan Thermawall TW50

25 mm / 50 mm residual cavity

Wall tie with retaining clip

Outer leaf brickwork

Wall lining

Flexible sealant

Wall lining
E2 – Open Back Lintel (Uninsulated) without Base Plate

General Construction Specification:
- wall lining;
- inner leaf blockwork;
- Kingspan ThermaWall® TW50 50 mm with 50 mm cavity; and
- outer leaf brickwork.

U-value Range:
- 0.24 W/m²-K (0.11 W/m-K block);
- 0.25 W/m²-K (0.15 W/m-K block);
- 0.26 W/m²-K (0.19 W/m-K block);
- 0.28 W/m²-K (0.51 W/m-K block); and
- 0.29 W/m²-K (1.13 W/m-K block).

Thermal Performance Process Sequence:
- Ensure Kingspan ThermaWall® TW50 boards are in contact with the lintel.
- Ensure there are no gaps between Kingspan ThermaWall® TW50 boards.
- For normal reveals, ensure the window / door frame overlaps the lintel by no less than 30 mm (take values from the first two rows of the table below).
- For fully overlapped / checked reveals, ensure the window / door frame overlaps the insulated lintel fully / by no less than 80 mm (take values from the last two rows of the table below).
- Kingspan ThermaWall® TW50 boards should be firmly held against the inner leaf of blockwork.
- The cavity and wall ties should be kept clean of mortar or other debris during construction.

Air Barrier Process Sequence:
- Seal the joint between the window frame and the internal linings.
- Apply flexible sealant to all interfaces between the internal air barrier and the window / door frame.
- Seal all penetrations through the air barrier using a flexible sealant.

Detail:

<table>
<thead>
<tr>
<th>Description</th>
<th>Internal Blockwork Conductivity (W/m-K)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>0.11</td>
</tr>
<tr>
<td>Normal 30 mm Overlap*</td>
<td>Linear Thermal Transmittance Ψ (W/m-K)</td>
</tr>
<tr>
<td>Temperature Factor (f)</td>
<td>0.286</td>
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<tr>
<td>Full Overlap (Incl. Checked Reveal)**</td>
<td>Linear Thermal Transmittance Ψ (W/m-K)</td>
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<td>Temperature Factor (f)</td>
<td>0.940</td>
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</table>

* Normal – 30 mm overlap between an 80 mm frame and 100 mm cavity.
** Full overlap / checked reveal – 80 mm overlap between an 80 mm frame and 100 mm cavity. Where full overlap and checked reveal values differ, the poorer value has been taken. See page 51 for further details.
Flexible sealant

Inner leaf blockwork

Proprietary uninsulated lintel

Cavity Tray DPC

Perpend weep holes

Wall tie with retaining clip

Wall lining

Kingspan Thermawall TW50

25 mm / 50 mm residual cavity

Outer leaf brickwork

Flexible sealant

25 mm / 50 mm residual cavity

Flexible sealant
General Construction Specification:
- wall lining;
- inner leaf blockwork;
- Kingspan ThermaWall® TW50 50 mm with 50 mm cavity; and
- outer leaf brickwork.

U-value Range:
- 0.24 W/m²-K (0.11 W/m-K block);
- 0.25 W/m²-K (0.15 W/m-K block);
- 0.26 W/m²-K (0.19 W/m-K block);
- 0.28 W/m²-K (0.51 W/m-K block); and
- 0.29 W/m²-K (1.13 W/m-K block).

Thermal Performance Process Sequence:
- Kingspan Kooltherm® Cavity Closer should be installed to close the cavity.
- Ensure Kingspan ThermaWall® TW50 boards are in contact with the full length of Kingspan Kooltherm® Cavity Closer. If required, fill the gap with insulating expanding foam.
- Ensure there are no gaps between Kingspan ThermaWall® TW50 boards.

Air Barrier Process Sequence:
- Apply flexible sealant to all interfaces between the internal air barrier and the window / door frame.
- Seal all penetrations through the air barrier using a flexible sealant.
- Seal the junction between the internal lining and the window sill board (if used).
- Seal the junction between the window sill board and the window frame member.

For normal reveals, ensure the window / door frame overlaps Kingspan Kooltherm® Cavity Closer by no less than 30 mm (take values from the first two rows of the table below).

For fully overlapped / checked reveals, ensure the window / door frame overlaps Kingspan Kooltherm® Cavity Closer fully / by no less than 80 mm (take values from the last two rows of the table below).

Kingspan ThermaWall® TW50 boards should be firmly held against the inner leaf of blockwork.

The cavity and wall ties should be kept clean of mortar or other debris during construction.

** NB The sill junction shown utilises a timber sill, however the modelled 𝜉-values also apply for the sill junction if a calcium silicate, cement-based or gypsum-based board of 12 mm thickness is included below the sill, with no loss of thermal performance, or if a greater thickness of timber sill were used.
Flexible sealant

Wall tie with retaining clip

Inner leaf blockwork

If required, fill gap with insulating expanding foam

Kingspan Kooltherm Cavity Closer

Wall lining

Inner leaf blockwork

Kingspan Thermawall TW50

25 mm / 50 mm residual cavity
**E4 - Jamb (Normal)**

**General Construction Specification:**
- wall lining;
- inner leaf blockwork;
- **Kingspan Therma**wall® TW50 50 mm with 50 mm cavity; and
- outer leaf brickwork.

**U-value Range:**
- 0.24 W/m²-K (0.11 W/m-K block);
- 0.25 W/m²-K (0.15 W/m-K block);
- 0.26 W/m²-K (0.19 W/m-K block);
- 0.28 W/m²-K (0.51 W/m-K block); and
- 0.29 W/m²-K (1.13 W/m-K block).

**Thermal Performance Process Sequence:**
- **Kingspan Kooltherm®** Cavity Closer should be installed to close the cavity.
- Ensure **Kingspan Therma**wall® TW50 boards are in contact with full length of **Kingspan Kooltherm®** Cavity Closer. If required, fill the gap with insulating expanding foam.
- Ensure there are no gaps between **Kingspan Therma**wall® TW50 boards.
- For normal reveals, ensure the window / door frame overlaps **Kingspan Kooltherm®** Cavity Closer by no less than 30 mm (take values from the first two rows of the table below).

**Air Barrier Process Sequence:**
- Apply flexible sealant to all interfaces between the internal air barrier and the window / door frame.
- Seal all penetrations through the air barrier using a flexible sealant.
- Seal the junction between the window sill board and the window frame member.

**Internal Blockwork Conductivity (W/m-K)**

<table>
<thead>
<tr>
<th>Description</th>
<th>0.11</th>
<th>0.15</th>
<th>0.19</th>
<th>0.51</th>
<th>1.13</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Normal 30 mm overlap</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Linear Thermal Transmittance Ψ (W/m-K)</td>
<td>0.015</td>
<td>0.014</td>
<td>0.013</td>
<td>0.011</td>
<td>0.011</td>
</tr>
<tr>
<td>Temperature Factor (f)</td>
<td>0.929</td>
<td>0.930</td>
<td>0.930</td>
<td>0.931</td>
<td>0.931</td>
</tr>
<tr>
<td><strong>Full Overlap (Incl. Checked Reveal)</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Linear Thermal Transmittance Ψ (W/m-K)</td>
<td>0.001</td>
<td>0.000</td>
<td>-0.001</td>
<td>-0.003</td>
<td>-0.003</td>
</tr>
<tr>
<td>Temperature Factor (f)</td>
<td>0.958</td>
<td>0.959</td>
<td>0.960</td>
<td>0.961</td>
<td>0.962</td>
</tr>
</tbody>
</table>

* Normal – 30 mm overlap between an 80 mm frame and 100 mm cavity.
** Full overlap / checked reveal – 80 mm overlap between an 80 mm frame and 100 mm cavity. Where full overlap and checked reveal values differ, the poorer value has been taken.

See page 52 for further details.
If required, fill gap with insulating expanding foam

Kingspan Kooltherm Cavity Closer

Flexible sealant

Wall lining

Kingspan Thermawall TW50

Inner leaf blockwork

Extra ties at jambs of all openings.

Wall tie and retaining clip

25 mm / 50 mm residual cavity

Outer leaf brickwork

225 mm max
E5 - Ground Floor - Solid Concrete Slab

**General Construction Specification:**
- wall lining;
- inner leaf blockwork;
- Kingspan ThermaWall® TW50 50 mm with 50 mm cavity; and
- outer leaf brickwork.

**U-value Range:**
- 0.24 W/m²-K (0.11 W/m-K block);
- 0.25 W/m²-K (0.15 W/m-K block);
- 0.26 W/m²-K (0.19 W/m-K block);
- 0.28 W/m²-K (0.51 W/m-K block); and
- 0.29 W/m²-K (1.13 W/m-K block).

**Thermal Performance Process Sequence:**
- Install 25 mm (minimum) Kingspan KoolTherm® K103 Floorboard vertically around the perimeter of the floor. Install the upstand insulation so that it is flush with the floor screed. Kingspan KoolTherm® K103 Floorboard or vertical perimeter insulation must tightly abut the inner leaf of blockwork.
- Kingspan ThermaWall® TW50 boards should be firmly held against the inner leaf of blockwork.

**Air Barrier Process Sequence:**
- Apply flexible sealant between wall lining and floor lining.
- Apply flexible sealant between the skirting board and the floor screed / finish.
- Seal all penetrations through the air barrier using a flexible sealant.

**Detail:**

<table>
<thead>
<tr>
<th>Description</th>
<th>0.11</th>
<th>0.15</th>
<th>0.19</th>
<th>0.51</th>
<th>1.13</th>
</tr>
</thead>
<tbody>
<tr>
<td>Internal Blockwork Conductivity (W/m-K)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Linear Thermal Transmittance Ψ (W/m-K)</td>
<td>0.068</td>
<td>0.075</td>
<td>0.081</td>
<td>0.122</td>
<td>0.180</td>
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<tr>
<td>Temperature Factor (f)</td>
<td>0.917</td>
<td>0.912</td>
<td>0.908</td>
<td>0.890</td>
<td>0.873</td>
</tr>
</tbody>
</table>
18 mm minimum from underside of Kingspan Thermawall TW50 to start of cavity fill

25 mm sand binding

100 mm concrete slab

Damp proof membrane

Floor screed

Floor finish

Inner leaf blockwork

Flexible sealant

Insulating expanding foam and/or flexible sealant

Kingspan Kooltherm K103 Floorboard Perimeter strip

Vapour control layer/separation layer

150 mm (min) compacted selected hardcore

Ensure Thermawall TW50 is installed 150 mm / 225 mm below top surface of perimeter strip insulation

First run of ties at 600 mm horizontal centres

Ensure cavity fill is at least 225 mm below DPC level

Kingspan Thermawall TW50

Brick outer leaf

Wall tie and retaining clip

Damp proof course

25 mm / 50 mm residual cavity

Weep holes at specified centres

Kingspan Kooltherm K103 Floorboard

100 mm concrete slab

Damp proof membrane

25 mm sand binding

150 mm (min) compacted selected hardcore

Floor finish

Floor screed

Vapour control layer/separation layer

Kingspan Kooltherm K103 Floorboard

Ensure Thermawall TW50 is installed 150 mm / 225 mm below top surface of perimeter strip insulation

First run of ties at 600 mm horizontal centres

Ensure cavity fill is at least 225 mm below DPC level
General Construction Specification:
- wall lining;
- inner leaf blockwork;
- **Kingspan Therma**wall® TW50 50 mm with 50 mm cavity; and
- outer leaf brickwork.

**U-value Range:**
- 0.24 W/m²-K (0.11 W/m-K block);
- 0.25 W/m²-K (0.15 W/m-K block);
- 0.26 W/m²-K (0.19 W/m-K block);
- 0.28 W/m²-K (0.51 W/m-K block); and
- 0.29 W/m²-K (1.13 W/m-K block).

Thermal Performance Process Sequence:
- Install 25 mm (minimum) **Kingspan Kool**therm® K103 Floorboard vertically around the perimeter of the floor.
- Install the upstand insulation so that it is flush with the floor screed. **Kingspan Kool**therm® K103 Floorboard or vertical perimeter insulation must tightly abut the inner leaf of blockwork.
- **Kingspan Therma**wall® TW50 boards should be firmly held against the inner leaf of blockwork.

**Notes:**
- Calculations based on 120 mm **Kingspan Kool**therm® K103 Floorboard insulation.
- Calculation conductivities as follows:
  - Trenching block = 0.24 W/m-K
  - Coursing block = 0.19 W/m-K
  - Edge beam = 0.18 W/m-K

**Air Barrier Process Sequence:**
- Apply flexible sealant between the wall lining and floor lining.
- Apply flexible sealant between the skirting board and the floor screed / finish.
- Seal all penetrations through the air barrier using a flexible sealant.

**Internal Blockwork Conductivity (W/m-K)**

<table>
<thead>
<tr>
<th>Description</th>
<th>0.11</th>
<th>0.15</th>
<th>0.19</th>
<th>0.51</th>
<th>1.13</th>
</tr>
</thead>
<tbody>
<tr>
<td>Linear Thermal Transmittance</td>
<td>0.035</td>
<td>0.036</td>
<td>0.037</td>
<td>0.042</td>
<td>0.045</td>
</tr>
<tr>
<td>Temperature Factor (f)</td>
<td>0.934</td>
<td>0.934</td>
<td>0.934</td>
<td>0.935</td>
<td>0.939</td>
</tr>
</tbody>
</table>
150 mm concrete beam
150 mm concrete block
Kingspan Thermawall TW50 or approved / certified partial fill insulation
Damp Proof Course
Cranked Vent and Air Brick
Weep holes below DPC / cavity tray at specified centres
DPC / cavity tray at specified centres
Kingspan Kooltherm K103
Floorboard
Damp Proof Membrane
100 mm concrete block
75 mm screed
Vapour control layer / separation layer
Floor finish
Wall lining
Inner leaf blockwork
Cavity tray over cranked vent only
Flexible sealant
Insulating expanding foam and / or flexible sealant
End Block
150 mm ventilation void
Weep holes above DPC / cavity tray at specified centres
Wall tie with retaining clip
Brick outer leaf
Inner leaf blockwork
20
E5 - Ground Floor - Beam & Block (Perpendicular)

General Construction Specification:
- wall lining;
- inner leaf blockwork;
- Kingspan Therma® TW50 50 mm with 50 mm cavity; and
- outer leaf brickwork.

U-value Range:
- 0.24 W/m²-K (0.11 W/m-K block);
- 0.25 W/m²-K (0.15 W/m-K block);
- 0.26 W/m²-K (0.19 W/m-K block);
- 0.28 W/m²-K (0.51 W/m-K block); and
- 0.29 W/m²-K (1.13 W/m-K block).

Thermal Performance Process Sequence:
- Install 25 mm (minimum) Kingspan Kooltherm® K103 Floorboard vertically around the perimeter of the floor.
- Install the upstand insulation so that it is flush with the floor finish. Kingspan Kooltherm® K103 Floorboard or vertical perimeter insulation must tightly abut the inner leaf of blockwork.
- Kingspan Therma® TW50 boards should be firmly held against the inner leaf of blockwork.

- Ensure Kingspan Therma® TW50 is installed at least 150 mm below the top surface of the floor beam / bottom of the insulation.
- The cavity and wall ties should be kept clean of mortar or other debris during construction.
- Ensure all Kingspan Therma® TW50 joints are lightly butted.

Air Barrier Process Sequence:
- Apply flexible sealant between the wall lining and floor lining.
- Apply flexible sealant between the skirting board and the floor screed / finish.
- Seal all penetrations through the air barrier using a flexible sealant.

Notes:
- Calculations based on 120 mm Kingspan Kooltherm® K103 Floorboard insulation.
- Calculation conductivities as follows:
  - Trenching block = 0.24 W/m-K
  - Coursing block = 0.19 W/m-K
  - Edge beam = 0.18 W/m-K

<table>
<thead>
<tr>
<th>Description</th>
<th>0.11</th>
<th>0.15</th>
<th>0.19</th>
<th>0.51</th>
<th>1.13</th>
</tr>
</thead>
<tbody>
<tr>
<td>Linear Thermal Transmittance Ψ (W/m-K)</td>
<td>0.024</td>
<td>0.025</td>
<td>0.026</td>
<td>0.030</td>
<td>0.033</td>
</tr>
<tr>
<td>Temperature Factor (f)</td>
<td>0.938</td>
<td>0.939</td>
<td>0.940</td>
<td>0.944</td>
<td>0.947</td>
</tr>
</tbody>
</table>
E5 - Ground Floor - Suspended Timber Floor (Parallel)

General Construction Specification:
- wall lining;
- inner leaf blockwork;
- Kingspan ThermaWall® TW50 50 mm with 50 mm cavity; and
- outer leaf brickwork.

U-value Range:
- 0.24 W/m²-K (0.11 W/m-K block);
- 0.25 W/m²-K (0.15 W/m-K block);
- 0.26 W/m²-K (0.19 W/m-K block);
- 0.28 W/m²-K (0.51 W/m-K block); and
- 0.29 W/m²-K (1.13 W/m-K block).

Thermal Performance Process Sequence:
- Install 25 mm (minimum) Kingspan KoolTherm® K103 Floorboard vertically around the perimeter of the floor. Install the upstand insulation so that it is flush with the floor finish. Kingspan KoolTherm® K103 Floorboard or vertical perimeter insulation must tightly abut the inner leaf of blockwork.
- Kingspan ThermaWall® TW50 boards should be firmly held against the inner leaf of blockwork.
- Kingspan ThermaWall® TW50 should be installed at least 250 mm below the top of the floor joist.
- The cavity and wall ties should be kept clean of mortar or other debris during construction.
- Ensure all Kingspan ThermaWall® TW50 joints are lightly butted.

Air Barrier Process Sequence:
- Apply flexible sealant between the wall lining and floor lining.
- Apply flexible sealant between the skirting board and the floor screed / finish.
- Seal all penetrations through the air barrier using a flexible sealant.

Notes:
- Calculations based on 120 mm Kingspan KoolTherm® K103 Floorboard insulation.

<table>
<thead>
<tr>
<th>Description</th>
<th>0.11</th>
<th>0.15</th>
<th>0.19</th>
<th>0.51</th>
<th>1.13</th>
</tr>
</thead>
<tbody>
<tr>
<td>Linear Thermal Transmittance</td>
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<td>0.101</td>
<td>0.106</td>
<td>0.124</td>
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<tr>
<td>Temperature Factor (f)</td>
<td>0.803</td>
<td>0.805</td>
<td>0.807</td>
<td>0.770</td>
<td>0.792</td>
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</table>
**E6 - Intermediate Floor within a Dwelling - Concrete**

**General Construction Specification:**
- wall lining;
- inner leaf blockwork;
- *Kingspan Therma®* TW50 50 mm with 50 mm cavity; and
- outer leaf brickwork.

**U-value Range:**
- 0.24 W/m²-K (0.11 W/m-K block);
- 0.25 W/m²-K (0.15 W/m-K block);
- 0.26 W/m²-K (0.19 W/m-K block);
- 0.28 W/m²-K (0.51 W/m-K block); and
- 0.29 W/m²-K (1.13 W/m-K block).

**Thermal Performance Process Sequence:**
- *Kingspan Therma®* TW50 boards should be firmly held against the inner leaf of blockwork.
- Continue *Kingspan Therma®* TW50 across the intermediate floor abutment zone.
- The cavity and wall ties should be kept clean of mortar or other debris during construction.
- Ensure all *Kingspan Therma®* TW50 joints are lightly butted.

**Air Barrier Process Sequence:**
- Seal between the wall lining and floor screed lining with flexible sealant or plaster / screed mortar.
- Seal between the wall lining and ceiling lining with flexible sealant or plaster mortar.
- Apply flexible sealant between the skirting board and the floor screed / finish.
- Seal all penetrations through the air barrier using a flexible sealant or plaster mortar.
- Ensure a continuous bed of mortar between the floor slab and blockwork.

<table>
<thead>
<tr>
<th>Description</th>
<th>Internal Blockwork Conductivity (W/m-K)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Linear Thermal Transmittance (\Psi) (W/m-K)</td>
<td>0.030</td>
</tr>
<tr>
<td>Temperature Factor (f)</td>
<td>0.964</td>
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</table>
E6 – Intermediate Floor within a Dwelling – Timber

General Construction Specification:
- wall lining;
- inner leaf blockwork;
- Kingspan ThermaWall® TW50 50 mm with 50 mm cavity; and
- outer leaf brickwork.

U-value Range:
- 0.24 W/m²·K (0.11 W/m·K block);
- 0.25 W/m²·K (0.15 W/m·K block);
- 0.26 W/m²·K (0.19 W/m·K block);
- 0.28 W/m²·K (0.51 W/m·K block); and
- 0.29 W/m²·K (1.13 W/m·K block).

Thermal Performance Process Sequence:
- Kingspan ThermaWall® TW50 boards should be firmly held against the inner leaf of blockwork.
- Continue the Kingspan ThermaWall® TW50 boards across the intermediate floor abutment zone.
- The cavity and wall ties should be kept clean of mortar or other debris during construction.
- Ensure all Kingspan ThermaWall® TW50 joints are lightly butted.

Air Barrier Process Sequence:
- Seal between the wall lining and floor screed lining with flexible sealant.
- Seal between the wall lining and ceiling lining with flexible sealant.
- Apply flexible sealant between the skirting board and the floor lining / finish.
- Seal all penetrations through the air barrier using a flexible sealant or plaster mortar.

<table>
<thead>
<tr>
<th>Description</th>
<th>0.11</th>
<th>0.15</th>
<th>0.19</th>
<th>0.51</th>
<th>1.13</th>
</tr>
</thead>
<tbody>
<tr>
<td>Linear Thermal Transmittance $\Psi$ (W/m·K)</td>
<td>0.000</td>
<td>0.000</td>
<td>0.000</td>
<td>0.000</td>
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<tr>
<td>Temperature Factor ($f$)</td>
<td>0.948</td>
<td>0.946</td>
<td>0.944</td>
<td>0.940</td>
<td>0.924</td>
</tr>
</tbody>
</table>
Kingspan Thermawall TW50

Wall tie with retaining clip

Wall lining

Floor finish

Timber floor joist

Flexible sealant

Insulating expanding foam and / or flexible sealant

Flexible sealant

Insulating expanding foam and / or flexible sealant

Joist hanger

Ceiling lining

Inner leaf blockwork

Outer leaf brickwork

25 mm / 50 mm residual cavity

Wall lining

25 mm / 50 mm residual cavity
E7 - Party Floor between Dwellings (e.g. in Blocks of Flats)

General Construction Specification:
- wall lining;
- inner leaf blockwork;
- *Kingspan Therma*wall® TW50 50 mm with 50 mm cavity; and
- outer leaf brickwork.

**U-value Range:**
- 0.24 W/m²·K (0.11 W/m·K block);
- 0.25 W/m²·K (0.15 W/m·K block);
- 0.26 W/m²·K (0.19 W/m·K block);
- 0.28 W/m²·K (0.51 W/m·K block); and
- 0.29 W/m²·K (1.13 W/m·K block).

Thermal Performance Process Sequence:
- *Kingspan Therma*wall® TW50 boards should be firmly held against the inner leaf of blockwork.
- Continue the *Kingspan Therma*wall® TW50 boards across the intermediate floor abutment zone.
- The cavity and wall ties should be kept clean of mortar or other debris during construction.

Air Barrier Process Sequence:
- Seal between the wall lining and floor screed lining with flexible sealant or plaster / screed mortar.
- Seal between the wall lining and ceiling lining with flexible sealant or plaster mortar.
- Apply flexible sealant between the skirting board and the floor screed / finish.
- Seal all penetrations through the air barrier using a flexible sealant or plaster mortar.
- Ensure a continuous bed of mortar between the floor slab and blockwork.

**Detail:**

<table>
<thead>
<tr>
<th>Description</th>
<th>0.11</th>
<th>0.15</th>
<th>0.19</th>
<th>0.51</th>
<th>1.13</th>
</tr>
</thead>
<tbody>
<tr>
<td>Linear Thermal Transmittance Ψ (W/m·K)</td>
<td>0.048</td>
<td>0.048</td>
<td>0.048</td>
<td>0.048</td>
<td>0.048</td>
</tr>
<tr>
<td>Temperature Factor (f)</td>
<td>0.962</td>
<td>0.961</td>
<td>0.960</td>
<td>0.955</td>
<td>0.951</td>
</tr>
</tbody>
</table>

*NB Ψ-value applies for each dwelling.*
- Kingspan Thermawall TW50
- Outer leaf brickwork
- Wall tie with retaining clip
- Reinforced Concrete floor slab
- Insulating expanding foam and / or flexible sealant
- Wall lining
- Floor finish
- DPC
- Cavity tray
- Weep holes
- Proprietary insulated fire stop
- Ceiling lining
- Inner leaf blockwork
- Flexible sealant
- Insulating expanding foam and / or flexible sealant

Weep holes
- Cavity tray
- DPC
E10 – Eaves (Insulation at Ceiling Level)

General Construction Specification:
- wall lining;
- inner leaf blockwork;
- **Kingspan Therma**wall® TW50 50 mm with 50 mm cavity; and
- outer leaf brickwork.

U-value Range:
- 0.24 W/m²-K (0.11 W/m-K block);
- 0.25 W/m²-K (0.15 W/m-K block);
- 0.26 W/m²-K (0.19 W/m-K block);
- 0.28 W/m²-K (0.51 W/m-K block); and
- 0.29 W/m²-K (1.13 W/m-K block).

Thermal Performance Process Sequence:
- **Kingspan Therma**wall® TW50 boards should be firmly held against the inner leaf of blockwork.

Ensure the gap between the wall plate and eaves ventilator is completely filled with flexible insulation. The flexible insulation is to have an R-value of 1.2 m².K/W or higher.

The flexible insulation should be tucked down the head of the cavity to enable continuity of the flexible insulation and **Kingspan Therma**wall® TW50 throughout the junction.

Air Barrier Process Sequence:
- Seal the wall plate on a continuous layer of mortar
- Seal the gap between the wall and ceiling linings with flexible sealant / plaster mortar
- Seal all penetrations through the air barrier using a flexible sealant / plaster mortar.

<table>
<thead>
<tr>
<th>Description</th>
<th>Internal Blockwork Conductivity (W/m-K)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Linear Thermal Transmittance $\Psi$ (W/m-K)</td>
<td>0.022 0.021 0.021 0.022 0.023</td>
</tr>
<tr>
<td>Temperature Factor (f)</td>
<td>0.929 0.931 0.932 0.936 0.939</td>
</tr>
</tbody>
</table>

Detail:
Membrane

Proprietary eaves ventilator

Roof tiles on battens

Vapour control layer

Insulating expanding foam and/or flexible sealant

Either use proprietary insulated fire stop, slate or non-combustible building board to close the cavity on battens

25 mm / 50 mm residual cavity

Kingspan Thermawall TW50

Inner leaf blockwork

Wall lining

Wall tie with retaining clip

Outer leaf brickwork

Proprietary eaves ventilation

Ceiling Insulation between and over

Ceiling lining
E11 - Eaves (Insulation at Rafter Level)

**General Construction Specification:**
- wall lining;
- inner leaf blockwork;
- *Kingspan Therma*wall® TW50 50 mm with 50 mm cavity; and
- outer leaf brickwork.

**U-value Range:**
- 0.24 W/m²-K (0.11 W/m-K block);
- 0.25 W/m²-K (0.15 W/m-K block);
- 0.26 W/m²-K (0.19 W/m-K block);
- 0.28 W/m²-K (0.51 W/m-K block); and
- 0.29 W/m²-K (1.13 W/m-K block).

**Thermal Performance Process Sequence:**
- *Kingspan Therma*wall® TW50 boards should be firmly held against the inner leaf of blockwork.
- Ensure the gap between the wall plate and eaves ventilator is completely filled with flexible insulation. The flexible insulation is to have an R-value of 1.2 m².K/W or higher.
- The flexible insulation should be tucked down the head of the cavity to enable continuity of the flexible insulation and *Kingspan Therma*wall® TW50 throughout the junction.

**Detail:**
- Ensure the full depth of ceiling insulation, between and over joist ceiling insulation, abuts the eaves insulation.
- *Kingspan Therma*wall® TW50 and eaves insulation should be firmly held against / butted tight against the fire stop.
- The cavity and wall ties should be kept clean of mortar or other debris during construction.
- Ensure all *Kingspan Therma*wall® TW50 joints are lightly butted.

**Air Barrier Process Sequence:**
- Bed the wall plate on a continuous layer of mortar.
- Seal the gap between the wall and ceiling linings with flexible sealant / plaster mortar.
- Seal all penetrations through the air barrier using a flexible sealant / plaster mortar.

<table>
<thead>
<tr>
<th>Description</th>
<th>0.11</th>
<th>0.15</th>
<th>0.19</th>
<th>0.51</th>
<th>1.13</th>
</tr>
</thead>
<tbody>
<tr>
<td>Linear Thermal Transmittance $\Psi$</td>
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<td>0.053</td>
<td>0.053</td>
<td>0.051</td>
<td>0.051</td>
</tr>
<tr>
<td>Temperature Factor ($f$)</td>
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<td>0.965</td>
<td>0.963</td>
<td>0.962</td>
<td>0.961</td>
</tr>
</tbody>
</table>
Inner leaf blockwork

Membrane

Roof tiles

Kingspan Thermawall TW50

Outer leaf brickwork

Proprietary eaves ventilation

Proprietary eaves ventilator

Kingspan Kooltherm K7

Pitched Roof Board

Kingspan Kooltherm K118

Insulated Plasterboard

Flexible roof insulation

Insulating expanding foam and / or flexible sealant

Either use proprietary insulated fire stop, slate or non-combustible building board to close the cavity

Inner leaf blockwork

Wall lining

Wall tie with retaining clip

Kingspan Thermawall TW50

Outer leaf brickwork

25 mm / 50 mm residual cavity
E12 - Gable (Insulation at Ceiling Level)

**General Construction Specification:**
- wall lining;
- inner leaf blockwork;
- Kingspan ThermaWall® TW50 50 mm with 50 mm cavity; and
- outer leaf brickwork.

**U–value Range:**
- 0.24 W/m²-K (0.11 W/m-K block);
- 0.25 W/m²-K (0.15 W/m-K block);
- 0.26 W/m²-K (0.19 W/m-K block);
- 0.28 W/m²-K (0.51 W/m-K block);
- 0.29 W/m²-K (1.13 W/m-K block); and
- loft insulation: 100 mm insulation between 100 mm joists @ 600 mm cc, with 150 mm insulation (0.039 W/m-K) over.

**Thermal Performance Process Sequence:**
- Kingspan ThermaWall® TW50 boards should be firmly held against the inner leaf of block work.
- Pack flexible insulation between the last truss / joist and gable wall.
- Ensure the ceiling insulation over the truss / joist tightly abuts the flexible insulation packed between the last truss / joists.
- Ensure the ceiling insulation between and over the truss / joists extends to the inner edge of the wall.
- The cavity and wall ties should be kept clean of mortar / other debris during construction.
- Ensure all Kingspan ThermaWall® TW50 joints are lightly butted.
- Kingspan ThermaWall® TW50 is to be installed a minimum of 200 mm above the top surface of the ceiling insulation.

**Air Barrier Process Sequence:**
- Seal the gap between the wall and ceiling linings with flexible sealant / plaster mortar.
- Seal all penetrations through the air barrier using a flexible sealant / plaster mortar.

<table>
<thead>
<tr>
<th>Description</th>
<th>0.11</th>
<th>0.15</th>
<th>0.19</th>
<th>0.51</th>
<th>1.13</th>
</tr>
</thead>
<tbody>
<tr>
<td>Linear Thermal Transmittance Ψ (W/m-K)</td>
<td>0.037</td>
<td>0.043</td>
<td>0.050</td>
<td>0.099</td>
<td>0.171</td>
</tr>
<tr>
<td>Temperature Factor (f)</td>
<td>0.907</td>
<td>0.898</td>
<td>0.892</td>
<td>0.861</td>
<td>0.835</td>
</tr>
</tbody>
</table>

**Detail:**
Inner leaf blockwork

Vapour control layer

Outer leaf brickwork

Insulating expanding foam and/or flexible sealant

Wall lining

Outer leaf brickwork

Kingspan Thermawall TW50

200 mm min

Ceiling Insulation between and over

Insulation

Either use proprietary insulated fire stop, slate or non-combustible building board to close the cavity

Cavity tray DPC

Weep holes

Ceiling lining

Vapour control layer
E13 - Gable (Insulation at Rafter Level)

General Construction Specification:
- wall lining;
- inner leaf blockwork;
- Kingspan ThermaWall® TW50 50 mm with 50 mm cavity; and
- outer leaf brickwork.

U-value Range:
- 0.24 W/m²·K (0.11 W/m·K block);
- 0.25 W/m²·K (0.15 W/m·K block);
- 0.26 W/m²·K (0.19 W/m·K block);
- 0.28 W/m²·K (0.51 W/m·K block); and
- 0.29 W/m²·K (1.13 W/m·K block).

Thermal Performance Process Sequence:
- Kingspan ThermaWall® TW50 boards should be firmly held against the inner leaf of blockwork.
- Ensure the gap between the wall plate and eaves ventilator is completely filled with flexible insulation. The flexible insulation is to have an R-value of 1.2 m²·K/W or higher.

Detail:
- The flexible insulation should be tucked down the head of the cavity to enable continuity of this and Kingspan ThermaWall® TW50 throughout the junction.
- Ensure the full depth of ceiling insulation, between and over joist ceiling insulation, abuts the eaves insulation.
- Kingspan ThermaWall® TW50 boards should be firmly held against / butted tight against the fire stop.
- The cavity and wall ties should be kept clean of mortar / other debris during construction.

Air Barrier Process Sequence:
- Bed the wall plate on a continuous layer of mortar.
- Seal the gap between the wall and ceiling linings with flexible sealant or plaster mortar.
- Seal all penetrations through the air barrier using a flexible sealant / plaster mortar.

<table>
<thead>
<tr>
<th>Description</th>
<th>Internal Blockwork Conductivity (W/m·K)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Linear Thermal Transmittance Ψ (W/m·K)</td>
<td>0.050</td>
</tr>
<tr>
<td>Temperature Factor (f)</td>
<td>0.913</td>
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</table>
Inner leaf blockwork
Kingspan Thermawall TW50
Outer leaf brickwork
Wall tie with retaining clip
Soffit board
Insulating expanding foam and / or flexible sealant
Wall lining
Ceiling lining
Insulation
Pitched Roof Board
Either use proprietary insulated fire stop, slate or non-combustible building board to close the cavity
Timber rafter
Kingspan Kooltherm K7
Kingspan Kooltherm K118 Insulated Plasterboard
Roof tiles
Timber battens

25 mm / 50 mm residual cavity
E14 - Flat Roof

General Construction Specification:

- Wall lining;
- Inner leaf blockwork;
- Kingspan Therma® TW50 50 mm with 50 mm cavity; and
- Outer leaf brickwork.

U-value Range:

- 0.24 W/m²-K (0.11 W/m-K block);
- 0.25 W/m²-K (0.15 W/m-K block);
- 0.26 W/m²-K (0.19 W/m-K block);
- 0.28 W/m²-K (0.51 W/m-K block); and
- 0.29 W/m²-K (1.13 W/m-K block).

Thermal Performance Process Sequence:

- Kingspan Therma® TW50 boards should be firmly held against the inner leaf of blockwork.
- Ensure the Kingspan Therma® TW50 boards are taken up level with the top of the wall firmly held against / butted tight against the fire stop.

- Pack flexible insulation between the last joist / gable ladder. Fully fill the void and ensure the insulation is in contact with the roof deck and cavity closer.
- Ensure Kingspan Therma® TR26 / TR27 LPC/FM or Kingspan Therma® TT46 / TT47 LPC/FM warm deck roof insulation extends to the edge of the roof.
- The cavity and wall ties should be kept clean of mortar / other debris during construction.
- Ensure all Kingspan Therma® TW50 joints are lightly butted.

Air Barrier Process Sequence:

- Seal the gap between the wall and ceiling linings with flexible sealant or plaster mortar.
- Seal all penetrations through the air barrier using a flexible sealant / plaster mortar.

<table>
<thead>
<tr>
<th>Description</th>
<th>0.11</th>
<th>0.15</th>
<th>0.19</th>
<th>0.51</th>
<th>1.13</th>
</tr>
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<tbody>
<tr>
<td>Linear Thermal Transmittance $\Psi$ (W/m-K)</td>
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<td>0.044</td>
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<td>Temperature Factor (f)</td>
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<td>0.956</td>
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</tbody>
</table>
Inner leaf blockwork

Outer leaf brickwork

Wall tie with retaining clip

Soffit board

Proprietary metal flashing

Flat roof joist

18 mm WBP Plyboard

Vapour control layer

Insulating expanding foam and/or flexible sealant

Wall lining

Ceiling lining

Waterproofing

Insulation Kingspan Thermaroof TR26 / TR27 LPC/FM or Thermataper TT46 / TT47 LPC/FM

Kingspan Thermawall TW50

Either use proprietary insulated fire building board to close the cavity

25 mm / 50 mm residual cavity
E15 - Flat Roof with Parapet

General Construction Specification:
- wall lining;
- inner leaf blockwork;
- Kingspan Therma® TW50 50 mm with 50 mm cavity; and
- outer leaf brickwork.

U-value Range:
- 0.24 W/m²-K (0.11 W/m-K block);
- 0.25 W/m²-K (0.15 W/m-K block);
- 0.26 W/m²-K (0.19 W/m-K block);
- 0.28 W/m²-K (0.51 W/m-K block); and
- 0.29 W/m²-K (1.13 W/m-K block).

Thermal Performance Process Sequence:
- Kingspan Therma® TW50 boards should be firmly held against the inner leaf of blockwork.
- Install 25 mm (minimum) Kingspan Therma® TR26 / TR27 LPC/FM upstand insulation around the parapet.

Detail:
- Ensure Kingspan Therma® TR26 / TR27 LPC/FM roof or upstand insulation tightly abuts the inner face of the parapet blockwork.
- Ensure there is a distance of at least 300 mm (minimum) between the top of Kingspan Therma® TR26 / TR27 LPC/FM upstand insulation and the bottom of Kingspan Therma® TR26 / TR27 LPC/FM roof insulation.
- The cavity and wall ties should be kept clean of mortar or other debris during construction.
- The Kingspan Therma® TW50 boards should be firmly held against / butted lightly against fire stop.

Air Barrier Process Sequence:
- Seal the gap between the wall and ceiling linings with flexible sealant or plaster mortar.
- Seal all penetrations through the air barrier using a flexible sealant / plaster mortar.

<table>
<thead>
<tr>
<th>Description</th>
<th>0.11</th>
<th>0.15</th>
<th>0.19</th>
<th>0.51</th>
<th>1.13</th>
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</thead>
<tbody>
<tr>
<td>Linear Thermal Transmittance Ψ (W/m-K)</td>
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<td>0.088</td>
<td>0.096</td>
<td>0.142</td>
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<tr>
<td>Temperature Factor (f)</td>
<td>0.934</td>
<td>0.929</td>
<td>0.925</td>
<td>0.903</td>
<td>0.880</td>
</tr>
</tbody>
</table>
Inner leaf blockwork

18 mm WBP Plyboard

roof deck

Proprietary metal flashing

Vapour control layer

Insulating expanding foam and/or flexible sealant

Wall lining

Kingspan Thermawall TW50

Outer leaf brickwork

25 mm/50 mm residual cavity

Wall tie with retaining clip

Inner leaf blockwork

Coping

Weep holes

Cavity tray DPC

Either use proprietary insulated fire stop, slate or non-combustible building board to close the cavity

Kingspan Thermaroof TR26/TR27 LPC/FM or Thermataper TT46/TT47 LPC/FM

Kingspan Thermaroof TR26/TR27 LPC/FM upstand insulation (25 mm minimum)

18 mm WBP Plyboard roof deck

Vapour control layer

Ceiling lining

Flat roof joist

Waterproofing

150 mm
General Construction Specification:
- wall lining;
- inner leaf blockwork;
- Kingspan Therma® TW50 50 mm with 50 mm cavity; and
- outer leaf brickwork.

U-value Range:
- 0.24 W/m²-K (0.11 W/m-K block);
- 0.25 W/m²-K (0.15 W/m-K block);
- 0.26 W/m²-K (0.19 W/m-K block);
- 0.28 W/m²-K (0.51 W/m-K block); and
- 0.29 W/m²-K (1.13 W/m-K block).

Thermal Performance Process Sequence:
- Kingspan Therma® TW50 joints should be staggered at the building corners.
- Ensure all Kingspan Therma® TW50 joints are lightly butted.
- Kingspan Therma® TW50 boards should be firmly held against the inner leaf of blockwork.
- The cavity and wall ties should be kept clean of mortar or other debris during construction.

Air Barrier Process Sequence:
- Seal the gap between the wall and ceiling linings with flexible sealant or plaster mortar.
- Seal all penetrations through the air barrier using a flexible sealant / plaster mortar.

<table>
<thead>
<tr>
<th>Description</th>
<th>0.11</th>
<th>0.15</th>
<th>0.19</th>
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<td>Linear Thermal Transmittance Ψ (W/m-K)</td>
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<td>0.045</td>
<td>0.048</td>
<td>0.061</td>
<td>0.067</td>
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<tr>
<td>Temperature Factor (f)</td>
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<td>0.852</td>
<td>0.851</td>
<td>0.852</td>
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</table>
Inner leaf blockwork
Outer leaf brickwork
Kingspan Thermawall TW50
Wall lining
25 mm / 50 mm residual cavity
Wall tie and retaining clip
Board joint
Inner leaf blockwork
General Construction Specification:
- wall lining;
- inner leaf blockwork;
- Kingspan ThermaWall® TW50 50 mm with 50 mm cavity; and
- outer leaf brickwork.

U-value Range:
- 0.24 W/m²·K (0.11 W/m·K block);
- 0.25 W/m²·K (0.15 W/m·K block);
- 0.26 W/m²·K (0.19 W/m·K block);
- 0.28 W/m²·K (0.51 W/m·K block); and
- 0.29 W/m²·K (1.13 W/m·K block).

Thermal Performance Process Sequence:
- Kingspan ThermaWall® TW50 joints should be staggered at the building corners.
- Kingspan ThermaWall® TW50 boards should be firmly held against the inner leaf of blockwork.
- Ensure all Kingspan ThermaWall® TW50 joints are lightly butted.
- The cavity and wall ties should be kept clean of mortar or other debris during construction.

Air Barrier Process Sequence:
- Seal the gap between the wall and ceiling linings with flexible sealant or plaster mortar.
- Seal all penetrations through the air barrier using a flexible sealant / plaster mortar.

### Table

<table>
<thead>
<tr>
<th>Description</th>
<th>0.11</th>
<th>0.15</th>
<th>0.19</th>
<th>0.51</th>
<th>1.13</th>
</tr>
</thead>
<tbody>
<tr>
<td>Linear Thermal Transmittance ψ (W/m·K)</td>
<td>-0.089</td>
<td>-0.095</td>
<td>-0.100</td>
<td>-0.111</td>
<td>-0.114</td>
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<tr>
<td>Temperature Factor (f)</td>
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<td>0.966</td>
<td>0.965</td>
<td>0.962</td>
<td>0.962</td>
</tr>
</tbody>
</table>
Inner leaf blockwork

Outer leaf brickwork

Wall lining

Kingspan Thermawall TW50

25 mm / 50 mm residual cavity

Wall tie with retaining clip

Board joint
E18 - Party Wall Between Dwellings (Filled Cavity)

**General Construction Specification:**
- wall lining;
- inner leaf blockwork;
- Kingspan Therma® TW50 50 mm with 50 mm cavity; and
- outer leaf brickwork.

**U-value Range:**
- 0.24 W/m²·K (0.11 W/m·K block);
- 0.25 W/m²·K (0.15 W/m·K block);
- 0.26 W/m²·K (0.19 W/m·K block);
- 0.28 W/m²·K (0.51 W/m·K block); and
- 0.29 W/m²·K (1.13 W/m·K block).

**Thermal Performance Process Sequence:**
- Kingspan Therma® TW50 should be firmly butted against the insulated fire stop.
- Ensure all Kingspan Therma® TW50 joints are lightly butted.
- Kingspan Therma® TW50 boards should be firmly held against the inner leaf of blockwork.
- Ensure Kingspan Therma® TW50 boards and insulated fire stop material are continuous across the abutment zone.
- The cavity and wall ties should be kept clean of mortar or other debris during construction.

**Air Barrier Process Sequence:**
- Seal the gap between the wall and ceiling linings with flexible sealant or plaster mortar.
- Seal all penetrations through the air barrier using a flexible sealant.

**Notes:**
- Ensure cavity wall qualifies for U=0.
- Cavity must have effective edge sealing to the top, bottom and vertically to prevent air movement.
- Cavity must be fully filled.

**Detail:**

**Table:**

<table>
<thead>
<tr>
<th>Description</th>
<th>0.11</th>
<th>0.15</th>
<th>0.19</th>
<th>0.51</th>
<th>1.13</th>
</tr>
</thead>
<tbody>
<tr>
<td>Linear Thermal Transmittance Ψ (W/m·K)</td>
<td>0.010</td>
<td>0.007</td>
<td>0.006</td>
<td>0.002</td>
<td>0.001</td>
</tr>
<tr>
<td>Temperature Factor (f)</td>
<td>0.932</td>
<td>0.931</td>
<td>0.930</td>
<td>0.930</td>
<td>0.931</td>
</tr>
</tbody>
</table>

NB Ψ-value applies for each dwelling.
50 mm overlap

Full fill cavity wall insulation to separating wall

25 mm / 50 mm residual cavity

Inner leaf blockwork

Outer leaf brickwork

Kingspan Thermawall TW50

Proprietary insulated fire / acoustic stop with integral or separate DPC

Wall tie with retaining clip

Wall lining

Blockwork

25 mm / 50 mm residual cavity

Full fill cavity wall insulation to separating wall
E18 – Party Wall Between Dwellings (Unfilled Cavity)

**General Construction Specification:**
- wall lining;
- inner leaf blockwork;
- Kingspan ThermaWall® TW50 50 mm with 50 mm cavity; and
- outer leaf brickwork.

**U-value Range:**
- 0.24 W/m²·K (0.11 W/m·K block);
- 0.25 W/m²·K (0.15 W/m·K block);
- 0.26 W/m²·K (0.19 W/m·K block);
- 0.28 W/m²·K (0.51 W/m·K block); and
- 0.29 W/m²·K (1.13 W/m·K block).

**Thermal Performance Process Sequence:**
- Kingspan ThermaWall® TW50 should be firmly butted against the insulated fire stop.
- Ensure all Kingspan ThermaWall® TW50 joints are lightly butted.
- Kingspan ThermaWall® TW50 boards should be firmly held against the inner leaf of blockwork.
- Ensure Kingspan ThermaWall® TW50 boards and insulated fire stop material are continuous across the abutment zone.
- The cavity and wall ties should be kept clean of mortar or other debris during construction.

**Air Barrier Process Sequence:**
- Seal the gap between the wall and ceiling linings with flexible sealant or plaster mortar.
- Seal all penetrations through the air barrier using a flexible sealant.

**Notes:**
- Ensure cavity wall qualifies for U=2.
- Cavity must have effective edge sealing to the top, bottom and vertically to prevent air movement.

### Internal Blockwork Conductivity (W/m-K)

<table>
<thead>
<tr>
<th>Description</th>
<th>0.11</th>
<th>0.15</th>
<th>0.19</th>
<th>0.51</th>
<th>1.13</th>
</tr>
</thead>
<tbody>
<tr>
<td>Linear Thermal Transmittance $\Psi$ (W/m-K)</td>
<td>0.013</td>
<td>0.010</td>
<td>0.009</td>
<td>0.005</td>
<td>0.004</td>
</tr>
<tr>
<td>Temperature Factor (f)</td>
<td>0.933</td>
<td>0.932</td>
<td>0.931</td>
<td>0.931</td>
<td>0.932</td>
</tr>
</tbody>
</table>

*NB* $\Psi$-value applies for each dwelling.
50 mm overlap

Unfilled cavity to separating wall

Inner leaf blockwork

Kingspan Thermawall TW50

25 mm / 50 mm residual cavity

Wall tie with retaining clip

Wall lining

Blockwork

Proprietary insulated fire / acoustic stop with integral or separate DPC
E2 - Lintel (Checked Reveal)

**Thermal Performance Process Sequence:**
- Kingspan ThermaWall® TW50 boards should be in contact with lintel.
- Ensure the Kingspan ThermaWall® TW50 boards and cavity tray / proprietary insulated lintel are lightly butted.
- Ensure there are no gaps between Kingspan ThermaWall® TW50 boards.
- Ensure window / door frame overlaps the insulated lintel by no less than 30 mm.
- Kingspan ThermaWall® TW50 boards should be firmly held against the inner leaf of blockwork.
- The cavity and wall ties should be kept clean of mortar or other debris during construction.

**Air Barrier Process Sequence:**
- Seal the joint between the window frame and the internal linings.
- Apply flexible sealant to all interfaces between the internal air barrier and the window / door frame.
- Seal all penetrations through the air barrier using a flexible sealant.
**E3 – Sill (Checked Reveal)**

**Thermal Performance Process Sequence:**
- *Kingspan Kooltherm*® Cavity Closer should be installed to close the cavity.
- Ensure the *Kingspan Thermawall*® TW50 is in contact with the full length of *Kingspan Kooltherm*® Cavity Closer. If required, fill the gap with insulating expanding foam.
- Ensure there are no gaps between *Kingspan Thermawall*® TW50 boards.
- Ensure the window frame overlaps *Kingspan Kooltherm*® Cavity Closer by no less than 30 mm.
- *Kingspan Thermawall*® TW50 boards should be firmly held against the inner leaf of blockwork.
- The cavity and wall ties should be kept clean of mortar or other debris during construction.
- Ensure the *Kingspan Thermawall*® TW50 boards and *Kingspan Kooltherm*® Cavity Closer are lightly butted.

**Air Barrier Process Sequence:**
- Apply flexible sealant to all interfaces between the internal air barrier and the window / door frame.
- Seal all penetrations through the air barrier using a flexible sealant.
- Seal the junction between the internal lining and the window sill board (if used).
- Seal the junction between the window sill board and the window frame member.

---

**Diagram:**

- Flexible sealant
- Wall tie with retaining clip
- Brick outer leaf
- *Kingspan Thermawall* TW50
- 25 mm / 50 mm residual cavity
- *Kingspan Kooltherm* Cavity Closer
- If required, fill gap with insulating expanding foam
- Wall lining
- Inner leaf blockwork
E4 – Jamb (Checked Reveal)

**Thermal Performance Process Sequence:**
- Kingspan Kooltherm® Cavity Closer should be installed to close the cavity.
- Kingspan Thermawall® TW50 boards should be in contact with the full length of the Kingspan Kooltherm® Cavity Closer. If required, fill the gap with insulating expanding foam.
- Ensure there are no gaps between Kingspan Thermawall® TW50 boards.
- Ensure the window / door frame overlaps Kingspan Kooltherm® Cavity Closer by no less than 30 mm.
- Kingspan Thermawall® TW50 boards should be firmly held against the inner leaf of blockwork.
- The cavity and wall ties should be kept clean of mortar or other debris during construction.
- Ensure the Kingspan Thermawall® TW50 boards and Kingspan Kooltherm® Cavity Closer are lightly butted.

- At the vertical edges of openings and at vertical unreturned or unbounded edges (for example at movement joints and up the sloping verge of gable walls), additional wall ties should be used at a rate of one tie per 300 mm height or equivalent, placed not more than 225 mm from the edge.
- Alternatively, an additional wall tie included within 225 mm of the opening / vertical edge on each board course (450 mm) level could be used to satisfy the structural requirements of the wall. As the boards are 450 mm in height, having ties at 300 mm centres will penetrate the board which may introduce an unacceptable risk of water penetration, therefore place additional ties on each board course to compensate.

**Air Barrier Process Sequence:**
- Apply flexible sealant to all interfaces between the internal air barrier and the window / door frame.
- Seal all penetrations through the air barrier using a flexible sealant.
- Seal the junction between the internal lining and the window / door frame members.
E5 - Solid Ground Floor (Cavity Tray Detail)

**Thermal Performance Process Sequence:**
- Install 25 mm (minimum) Kingspan Kooltherm® K103 Floorboard vertically around the perimeter of the floor. Install the upstand insulation so that it is flush with the floor screed. Kingspan Kooltherm® K103 Floorboard or vertical perimeter insulation must tightly abut the inner leaf of blockwork.
- Kingspan ThermaWall® TW50 boards should be firmly held against the inner leaf of blockwork.
- Ensure the Kingspan ThermaWall® TW50 boards are installed at least 150 mm / 225 mm (150 mm for UK and 225 mm for Republic of Ireland) below the top surface of the Kingspan Kooltherm® K103 Floorboard perimeter insulation.
- The cavity and wall ties should be kept clean of mortar or other debris during construction.
- Ensure all Kingspan ThermaWall® TW50 board joints are lightly butted.

**Air Barrier Process Sequence:**
- Apply flexible sealant between the wall lining and floor lining.
- Apply flexible sealant between the skirting board and floor screed / finish.
- Seal all penetrations through the air barrier using a flexible sealant.
- Typically the DPM / Radon / Gas membrane will form the cavity tray detail.

---

* Typically the DPM / Radon / Gas membrane will form the cavity tray detail.
E5 - Timber Floor - Perpendicular

**Thermal Performance Process Sequence:**
- Install 25 mm (minimum) Kingspan Kooltherm® K103 Floorboard vertically around the perimeter of the floor. Install the upstand insulation so that it is flush with the floor screed. Kingspan Kooltherm® K103 Floorboard or vertical perimeter insulation must tightly abut the inner leaf of blockwork.
- Kingspan Thermawall® TW50 boards should be firmly held against the inner leaf of blockwork.
- Ensure the Kingspan Thermawall® TW50 insulation boards are installed at least 250 mm below the top of the floor joist.
- The cavity and wall ties should be kept clean of mortar or other debris during construction.
- Ensure all Kingspan Thermawall® TW50 joints are lightly butted.

**Air Barrier Process Sequence:**
- Apply flexible sealant between the wall lining and floor lining.
- Apply flexible sealant between the skirting board and floor screed / finish.
- Seal all penetrations through the air barrier using a flexible sealant.
**Thermal Performance Process Sequence:**
- Ensure *Kingspan Therma*wall® TW50 board joints are staggered at the building corners.
- Ensure all *Kingspan Therma*wall® TW50 board joints are lightly butted.
- *Kingspan Therma*wall® TW50 board should be firmly held against the inner leaf of blockwork.
- The cavity and wall ties should be kept clean of mortar or other debris during construction.

**Air Barrier Process Sequence:**
- Seal the gap between the wall linings with flexible sealant or plaster mortar.
- Seal all penetrations through the air barrier using a flexible sealant.
**Thermal Performance Process Sequence:**
- Ensure Kingspan ThermaWall® TW50 board joints are staggered at the building corners.
- Kingspan ThermaWall® TW50 boards should be firmly held against the inner leaf of blockwork.
- Ensure all Kingspan ThermaWall® TW50 board joints are lightly butted.
- The cavity and wall ties should be kept clean of mortar or other debris during construction.

**Air Barrier Process Sequence:**
- Seal the gap between the wall linings with flexible sealant or plaster mortar.
- Seal all penetrations through the air barrier using a flexible sealant.
Flue (Core Drilled, No Separation)

Thermal Performance Process Sequence:
- Kingspan ThermaWall® TW50 boards should be firmly held against the inner leaf of blockwork.
- Ensure the Kingspan ThermaWall® TW50 boards are snugly fitted around the pipe / flue. Kingspan ThermaWall® TW50 may be core drilled to create the circumference required.
- Once the flue / pipe and sleeving (if required) has been installed, apply expanding foam and / or flexible sealant around the perimeter of the flue / pipe, internal and external.
- The cavity and wall ties should be kept clean of mortar or other debris during construction.
- Ensure all Kingspan ThermaWall® TW50 board joints are lightly butted.

Air Barrier Process Sequence:
- Seal the gap between the wall lining and flue with insulating expanding foam and / or flexible sealant.
- Seal all penetrations through the air barrier using a flexible sealant.

Notes:
- This detail may be used where a separation between the flue / air duct and combustible material is not required, for example plastic flues serving appliances that operate under 100°C.
- Always refer to the manufacturer of the heating system and obtain guidance from a competent person (Gas safe, OFTEC, HETAS or equivalent) to determine the requirements.
- Manufacturer’s instructions may detail a specific clearance from the flue / air supply duct(s) and combustible materials, irrespective of flue–gas or duct temperature, therefore see flue (built in, separation) detail on page 60.
**Flue (Built In, No Separation)**

**Thermal Performance Process Sequence:**
- Kingspan ThermaWall® TW50 boards should be firmly held against the inner leaf of blockwork.
- Ensure the Kingspan ThermaWall® TW50 boards are snugly fitted around the pipe / flue. Kingspan ThermaWall® TW50 may be core drilled to create the circumference required.
- Once the flue / pipe and sleeving (if required) has been installed apply expanding foam and / or flexible sealant around the perimeter of the flue / pipe, internal and external.
- The cavity and wall ties should be kept clean of mortar or other debris during construction.
- Ensure all Kingspan ThermaWall® TW50 board joints are lightly butted.

**Air Barrier Process Sequence:**
- Seal the gap between the wall lining and flue with insulating expanding foam and / or flexible sealant.
- Seal all penetrations through the air barrier using a flexible sealant.

**Notes:**
- This detail may be used where a separation between the flue / air duct and combustible material is not required, for example plastic flues serving appliances that operate under 100°C.
- Always refer to the manufacturer of the heating system and obtain guidance from a competent person (Gas safe, OFTEC, HETAS or equivalent) to determine the requirements.
- Manufacturer’s instructions may detail a specific clearance from the flue / air supply duct(s) and combustible materials, irrespective of flue-gas or duct temperature, therefore see flue (built in, separation) detail on page 60.
Flue (Built In, Separation)

Thermal Performance Process Sequence:
- **Kingspan Thermawall®** TW50 boards should be firmly held against the inner leaf of blockwork.
- Terminate the **Kingspan Thermawall®** TW50 boards so that it is the required separation distance away from the flue in all four directions.
- Ensure the **Kingspan Thermawall®** TW50 boards are lightly butted up to the non-combustible insulation layer.
- Once the flue / pipe and sleeving (if required) has been installed apply expanding fire foam and / or flexible fire sealant around the perimeter of the flue / pipe, internal and external.
- Ensure the **Kingspan Thermawall®** TW50 boards and non-combustible insulation infill are lightly butted and taped with self adhesive breather tape.
- The cavity and wall ties should be kept clean of mortar or other debris during construction.

Air Barrier Process Sequence:
- Seal the gap between the wall lining and flue with insulating expanding foam and / or flexible sealant.
- Seal all penetrations through the air barrier using a flexible sealant.

Notes:
- This detail illustrates when separation from the flue / air duct and combustible material is required.
- The appliance manufacturer’s instructions must be sought, which may detail a specific clearance from the flue / air supply duct (s) and combustible materials, irrespective of flue-gas or duct temperature.
- The dimension of non-combustible insulation around flue pipes / terminal can vary, for example, all flues serving oil fired boilers require a 300 mm minimum area around the flue pipe / terminal free from combustible material.
Wall Tie Detail

**Thermal Performance Process Sequence:**
- Kingspan Thermawall® TW50 boards should be firmly held against the inner leaf of blockwork.
- The cavity and wall ties should be kept clean of mortar or other debris during construction.

**Air Barrier Process Sequence:**
- Seal the gap between the wall linings with flexible sealant or plaster mortar.
- Seal all penetrations through the air barrier using a flexible sealant.

![Diagram](image-url)
Contact Details

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Technical Advice / Design
Kingspan Insulation supports all of its products with a comprehensive Technical Advisory Service. Calculations can be carried out to provide U-values, condensation / dew point risk, required insulation thicknesses etc...
U-value calculations can also be carried out on the Kingspan Insulation U-value Calculator, available for free online at www.uvalue-calculator.co.uk or downloaded as an App.
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.
The Kingspan Insulation British Technical Service Department operates under a management system certified to the BBA Scheme for Assessing the Competency of Persons to Undertake U-value and Condensation Risk Calculations.

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