This example should be read in conjunction with the guidance in the introduction to this document. It illustrates the reduction of unwanted infiltration in buildings and provides a Psi value for this junction situation which can be used in calculation provided the principles outlined and any identified component specification are followed.
**Thermal continuity checklist**

1. Ensure that insulation layers in roof are fitted perpendicularly, to cover junctions.
2. Ensure that roof insulation butts against the cavity wall insulation, with minimum of 150mm overlap at narrowest point.

**Air tightness checklist**

1. Check that any air tightness barrier used in the ceiling overlaps with the barrier in the wall.

**Design advice**

**Minimising condensation risk**

1. Check ventilation paths are clear before installing insulation above the ceiling.

**Thermal Resistance of insulation used in details:**

- Wall (cavity) - 4.545 (m²K)/W
- Roof - 9.500 (m²K)/W

Note: See detail numbers 1.02 and 1.21 for other junctions using this roof construction.

**Psi value**

- 0.0402 W/mK

This example should be read in conjunction with the guidance in the introduction to this document. It illustrates the reduction of unwanted infiltration in buildings and provides a Psi value for this junction situation which can be used in calculation provided the principles outlined and any identified component specification are followed.
**Thermal continuity checklist**

1. Ensure that insulation layers in roof are fitted perpendicularly, to cover junctions.
2. Ensure that roof insulation butts against the gable wall.

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**Air tightness checklist**

1. Check that any air tightness barrier used in the ceiling overlaps with the barrier in the wall.

---

**Design advice**

**Minimising condensation risk**

1. Check ventilation paths are clear before installing insulation above the ceiling.

**Thermal Resistance of insulation used in details:**
- Wall (cavity) - 4.545 (m²K)/W
- Infill strip at roof truss - 1.136 (m²K)/W
- Roof - 9.500 (m²K)/W

---

This example should be read in conjunction with the guidance in the introduction to this document. It illustrates the reduction of unwanted infiltration in buildings and provides a Psi value for this junction situation which can be used in calculation provided the principles outlined and any identified component specification are followed.

**Psi value = 0.1436 W/mK**

**Masonry: Cavity Wall Insulation - Full fill**

**Pitched Roof: Ventilated Roofspace - Gable**

---

HEAT 2.7 software image of isotherms through junction detail. For illustrative purposes only.
HEAT 2.7 software image of isotherms through junction detail. For illustrative purposes only.

This example should be read in conjunction with the guidance in the introduction to this document. It illustrates the reduction of unwanted infiltration in buildings and provides a Psi value for this junction situation which can be used in calculation provided the principles outlined and any identified component specification are followed.

**Thermal continuity checklist**
1. Ensure that insulation layers in roof are fitted perpendicularly, to cover junctions
2. Ensure that roof insulation butts against the gable wall

**Air tightness checklist**
1. Check that any air tightness barrier used in the ceiling overlaps with the barrier in the wall

**Design advice**
**Minimising condensation risk**
1. Check ventilation paths are clear before installing insulation above the ceiling

Thermal Resistance of insulation used in details:
- Wall (cavity) - 4.545 (m²K)/W
- Roof - 9.500 (m²K)/W

Note: See detail numbers 1.04, 1.05 and 1.22 for other junctions using this roof construction

**Psi value** = 0.0501 W/mK

**Masonry: Cavity Wall Insulation - Full fill**

**Pitched Roof: Ventilated Rafter Void - Gable**

**Detail 1.03**
**Masonry: Cavity Wall Insulation - Full fill**

- Rigid insulation used as sarking
- Insulation to be vapour permeable
- Vapour permeable membrane
  (with a vapour resistance of not more than 0.25MN.s/g)
- Lap roof and wall insulation
  minimum 50mm thickness at narrowest point
- Proprietary over fascia ventilator
- Air tightness barrier in wall, plaster shown
- Insulation between the masonry walls. This insulation must be tightly fitted, leaving no gaps

**Pitched Roof: Ventilated Batten Void (warm roof) - Eaves**

- Ventilation gap equivalent to 5mm minimum continuous opening is required at ridge to batten space
- Timber batten to prevent direct path at ceiling junction for air infiltration
- Ventilation to batten void
- Vapour permeable membrane (with a vapour resistance of not more than 0.25MN.s/g)
- Lap roof and wall insulation minimum 50mm thickness at narrowest point
- Proprietary over fascia ventilator
- Air tightness barrier in wall, plaster shown
- Insulation between the masonry walls. This insulation must be tightly fitted, leaving no gaps

**Thermal Continuity Checklist**
1. Ensure that insulation layers in roof are fitted perpendicularly, to cover junctions
2. Ensure that roof insulation butts against the cavity wall insulation, with minimum of 50mm overlap at narrowest point

**Air Tightness Checklist**
1. Check that any air tightness barrier used in the ceiling overlaps with the barrier in the wall

**Design Advice**

**Minimising Condensation Risk**
1. Check ventilation paths are clear before installing insulation above the ceiling

**Thermal Resistance of Insulation used in Details:**
- Wall (cavity) - 4.545 (m²K/W)
- Roof - 9.500 (m²K/W)

**Note:** See detail numbers 1.03, 1.05 and 1.22 for other junctions using this roof construction

---

**Psi value** = 0.0688W/mK

**HEAT 2.7 software image of isotherms through junction detail.**
For illustrative purposes only.

---

This example should be read in conjunction with the guidance in the introduction to this document. It illustrates the reduction of unwanted infiltration in buildings and provides a Psi value for this junction situation which can be used in calculation provided the principles outlined and any identified component specification are followed.

**Detail 1.04**
**Masonry: Cavity Wall Insulation - Full fill**

**Pitched Roof: Ventilated Batten Void (warm roof) - Gable**

**Psi value = 0.1003W/mK**

**Air tightness checklist**

1. Check that any air tightness barrier used in the ceiling overlaps with the barrier in the wall.

**Design advice**

Minimising condensation risk

1. Check ventilation paths are clear before installing insulation above the ceiling.

Thermal Resistance of insulation used in details:

Wall (cavity) - 4.545 (m^2K)/W
Roof - 9.500(m^2K)/W

Note: See detail numbers 1.03, 1.04 and 1.22 for other junctions using this roof construction.

**Thermal continuity checklist**

1. Ensure that insulation layers in roof are fitted perpendicularly, to cover junctions.
2. Ensure that roof insulation butts against the gable wall.

**Air tightness barrier in wall, plaster shown**

**Compressible filler**

**Vapour permeable membrane** (with a vapour resistance of not more than 0.25 MN.s/g)

**Insulation between joists and inner face of the wall**

**Cavity closer (thin calcium silicate board or similar)**

**Vapour control layer in ceiling**

**Where two insulation types are used together see supplementary guidance**

**Timber joist to provide fixing for plasterboard sheets**

**Insulation between the masonry walls. This insulation must be tightly fitted, leaving no gaps**

This example should be read in conjunction with the guidance in the introduction to this document. It illustrates the reduction of unwanted infiltration in buildings and provides a Psi value for this junction situation which can be used in calculation provided the principles outlined and any identified component specification are followed.
**Thermal continuity checklist**

1. Ensure that insulation layers in roof are fitted perpendicularly, to cover junctions
2. Ensure that roof insulation butts against the gable wall

**Air tightness checklist**

1. Check that any air tightness barrier used in the ceiling overlaps with the barrier in the wall

**Design advice**

Minimising condensation risk

1. Check ventilation paths are clear before installing insulation above the ceiling
2. A vapour control layer is required at ceiling level, to prevent moisture from entering into the roof construction
3. The option shown here includes a vapour control layer and insulation as part of a membrane roof construction. Similar details could be used for a profiled metal decking roof but consult with manufacturer regarding ventilation requirements.

**Thermal Resistance of insulation used in details:**

- Wall (cavity) - 4.545 (m²K)/W
- Roof - 9.500 (m²K)/W

**Psi value** = 0.0781 W/mK

**Masonry: Cavity Wall Insulation - Full fill**

**Timber Flat Roof**

This example should be read in conjunction with the guidance in the introduction to this document. It illustrates the reduction of unwanted infiltration in buildings and provides a Psi value for this junction situation which can be used in calculation provided the principles outlined and any identified component specification are followed.
**Psi value = 0.1817W/mK**

**Detail 1.07**

**Masonry: Cavity Wall Insulation - Full fill**

**Timber Flat Roof with Parapet**

**Thermal continuity checklist**
1. Ensure that insulation layers in roof are fitted perpendicularly, to cover junctions
2. Ensure that roof insulation butts against the gable wall

**Air tightness checklist**
1. Check that any air tightness barrier used in the ceiling overlaps with the barrier in the wall

**Thermal Resistance of insulation used in details:**

<table>
<thead>
<tr>
<th>Insulation Type</th>
<th>R-value (m²K)/W</th>
</tr>
</thead>
<tbody>
<tr>
<td>Wall (cavity)</td>
<td>0.054 (m²K)/W</td>
</tr>
<tr>
<td>Roof</td>
<td>0.050 (m²K)/W</td>
</tr>
</tbody>
</table>

**Design advice**

**Minimising condensation risk**
1. Check ventilation paths are clear before installing insulation above the ceiling
2. A vapour barrier is required at ceiling level, to prevent moisture from entering into the roof construction
3. The option shown here includes a vapour control layer and insulation as part of a membrane roof construction. Similar details could be used for a profiled metal decking roof but consult with manufacturer regarding ventilation requirements.

**HEAT 2.7 software image of isotherms through junction detail.**

For illustrative purposes only.

This example should be read in conjunction with the guidance in the introduction to this document. It illustrates the reduction of unwanted infiltration in buildings and provides a Psi value for this junction situation which can be used in calculation provided the principles outlined and any identified component specification are followed.
**Thermal continuity checklist**

1. Check that there is no debris in the cavity
2. Install insulation in the window reveal

**Air tightness checklist**

1. Install window to overlap with outer leaf of wall finish.
   Alternative:
   If window lines through with the bottom of the opening in the external finish, some means of preventing a direct line of air infiltration will be required
2. Install air tightness seal between the inside face of the window and the structural finish of the window opening.

**Design advice**

**Minimising condensation risk**

1. Alternative internal finish at window reveal - use insulation backed plasterboard

**General notes**

2. The window head and jamb details shown have used a plywood box lining around the window opening in the internal leaf of the wall, to allow for window fixings.
   Alternative details are possible but the continuity of insulation and air tightness should be considered.

**Thermal Resistance of insulation used in details:**

- Wall (cavity) - 4.545 (m²K)/W
- Insulated plasterboard - 1.591 (m²K)/W

**Masonry: Cavity Wall Insulation - Full fill**

**Detail 1.08**

**Lintel at Window Head**

Psi value = 0.1744W/mK

Note: the timber batten in window reveal is shown smaller than actual size, to allow the membrane corner strip to be seen

Note: using a composite steel lintol across the whole wall will create major thermal bridging

This example should be read in conjunction with the guidance in the introduction to this document. It illustrates the reduction of unwanted infiltration in buildings and provides a Psi value for this junction situation which can be used in calculation provided the principles outlined and any identified component specification are followed.
Thermal continuity checklist
1. Check that there is no debris in the cavity
2. Install insulation in the window reveal

Air tightness checklist
1. Install window to overlap with outer leaf of wall finish.
   Alternative: If window lines through with the bottom of the opening in the external finish, some means of preventing a direct line of air infiltration will be required
2. Install air tightness seal between the inside face of the window and the structural finish of the window opening.

Design advice
Minimising condensation risk
1. Alternative internal finish at window reveal - use insulation backed plasterboard

General notes
2. The window head and jamb details shown have used a plywood box lining around the window opening in the internal leaf of the wall, to allow for window fixings. Alternative details are possible but the continuity of insulation and air tightness should be considered.

Thermal Resistance of insulation used in details:
- Wall (cavity) - 4.545 (m$^2$K)/W
- Insulated plasterboard - 1.591 (m$^2$K)/W
- Insulated cavity barrier - 3.409 (m$^2$K)/W

This example should be read in conjunction with the guidance in the introduction to this document. It illustrates the reduction of unwanted infiltration in buildings and provides a Psi value for this junction situation which can be used in calculation provided the principles outlined and any identified component specification are followed.

Psi value (jamb) = 0.2324 W/mK
Psi value (cill) = 0.0899 W/mK

Masonry: Cavity Wall Insulation - Full fill
Windows and Doors - Jambs and Cills

Detail 1.09
**Thermal continuity checklist**

1. Use a perimeter strip of insulation where the concrete slab abuts the concrete blockwork wall
2. Ensure that insulation level in external wall overlaps with the insulation at the floor slab

**Air tightness checklist**

1. Check that any air tightness barrier used in the wall overlaps with the barrier in the floor

**Design advice**

**Minimising condensation risk**

1. Check that concrete slab is level and clear of debris before fitting the insulation at floor level
2. If a screed finish is used instead of a timber floor, use a strip of perimeter insulation with a minimum R value of 0.19 W/mK to improve the thermal performance at the junction where the external wall and ground floor constructions meet.

**Alternative detail**

3. Using lightweight blockwork (e.g. with \( \lambda \) value of 0.19 W/mK) to improve the thermal performance at the junction where the external wall and ground floor constructions meet will change the psi value.

**Thermal Resistance of insulation used in details:**

- Wall (cavity) - 4.545 (m²K)/W
- Insulated perimeter strip - 0.455 (m²K)/W
- Floor - 3.864 (m²K)/W

---

Psi value = 0.1979 W/mK

Masonry: Cavity Wall Insulation - Full fill
Ground Bearing Floor: Insulation Above Slab

**Detail 1.10**

This example should be read in conjunction with the guidance in the introduction to this document. It illustrates the reduction of unwanted infiltration in buildings and provides a psi value for this junction situation which can be used in calculation provided the principles outlined and any identified component specification are followed.
Thermal continuity checklist

1. Use a perimeter strip of insulation where the concrete slab abuts the concrete blockwork wall.
2. Ensure that insulation level in external wall overlaps with the insulation at the floor slab.

Detail 1.11

Thermal Resistance of insulation used in details:
- Wall (Cavity) - 4.546 (m²K)/W
- Insulated perimeter strip - 1.136 (m²K)/W

Psi value = 0.1801 W/mK

Thermal insulation:
- 50mm strip of perimeter insulation with thermal conductivity (λ) value not exceeding 0.025 W/mK around slab and any screed.

Air tightness checklist

1. Check that any air tightness barrier used in the wall overlaps with the barrier in the floor slab.

Design advice

Minimising condensation risk

1. If a screed finish is used instead of a timber floor, use a strip of perimeter insulation with a minimum R value of 0.15 m²K/W for the depth of the screed.

2. Using lightweight blockwork (e.g., with λ value of 0.19 W/mK) to improve the thermal performance at the junction where the external wall and ground floor constructions meet will change the Psi value.

Vapour control layer
- Tape corner strip of air tightness membrane with a flexible sealant or seal the gap between skirting board and floor using a flexible sealant.

Damp proof membrane
- Seal between the wall and floor membrane with a flexible sealant or seal the gap between skirting board and floor using a flexible sealant.

Air tightness layer, plaster shown
- For illustrative purposes only.

This example should be read in conjunction with the guidance in the introduction to this document. It illustrates the reduction of unwanted infiltration in buildings and provides a Psi value for this junction situation which can be used in calculation provided the principles outlined and any identified component specification are followed.
Masonry: Cavity Wall Insulation - Full fill

Timber Suspended Ground Floor

Psi value = 0.2191W/mK

Air tightness checklist

1. Ensure that any air tightness barrier used in the wall overlaps with the barrier in the floor

Thermal continuity checklist

1. Use a perimeter strip of insulation between the floor joists and the blockwork wall
2. Ensure that insulation level in external wall overlaps with the insulation at the floor construction

Design advice

Minimising condensation risk
1. Check that all ventilation paths are clear before installing the floor insulation

Alternative detail
2. Using lightweight blockwork (e.g. with λ value of 0.19W/mK) to improve thermal performance at the junction where the external wall and ground floor constructions meet will change the psi value
3. If there are concerns about damaging the air tightness membrane in the floor finish during construction, an additional services void can be created using timber battens on top of the floor joists

Thermal Resistance of insulation used in details:
- Wall (cavity) - 4.545 (m²K)/W
- Insulated perimeter strip - 1.136 (m²K)/W
- Floor - 5.455 (m²K)/W

Sub floor ventilation should be provided, minimum 1500mm² per run of external wall or 500mm² per m² of floor area

Floor joist ends supported on joist hangers or using scarcement wall

Insulation directly under flooring - supported on netting draped over joists and stapled at the required depths

Air tightness layer below timber floor finish

Air tightness layer, plaster shown

Use air tightness tape at junction of air barrier in wall and floor. Seal between the wall and floor membrane with a flexible sealant or seal the gap between skirting board and floor using a flexible sealant

Minimum 20mm strip of insulation with thermal conductivity (λ value) not exceeding 0.025 W/mK should be installed between wall and the last joist

This example should be read in conjunction with the guidance in the introduction to this document. It illustrates the reduction of unwanted infiltration in buildings and provides a Psi value for this junction situation which can be used in calculation provided the principles outlined and any identified component specification are followed.

HEAT 2.7 software image of isotherms through junction detail. For illustrative purposes only.
**Thermal continuity checklist**

1. Check that there is no debris in cavity
2. Install thermally insulated cavity barrier in line with separating wall

**Air tightness checklist**

1. Ensure that any air tightness barrier used in the internal wall overlaps with the barrier in the external wall

**Design advice**

**Minimising condensation risk**

1. Check that insulation is fitted tightly to concrete block wall at corner junctions

**Thermal Resistance of insulation used in details:**
- Wall (cavity) - 4.545 (m²K)/W
- Wall (separating) - 1.136 (m²K)/W

**Psi value = 0.0024W/mK**

This example should be read in conjunction with the guidance in the introduction to this document. It illustrates the reduction of unwanted infiltration in buildings and provides a Psi value for this junction situation which can be used in calculation provided the principles outlined and any identified component specification are followed.

**Masonry: Cavity Wall Insulation - Full fill**

**Separating Wall**
Thermal continuity checklist

1. Check that there is no debris in the cavity.

HEAT 2.7 software image of isotherms through junction detail. For illustrative purposes only.

Psi value = 0.054 W/mK

Concrete Separating Floor

Masonry: Cavity Wall Insulation - Full fill

Air tightness checklist

Design stage

1. Check that any air tightness barrier used in the external wall overlaps with the barrier in the floor
   Alternative:
   If the air tightness barrier is installed onto the face of the blockwork wall and runs continuously through the floor construction, check that there are no gaps or damage in air tightness barrier before building the inner leaf of the upper wall

2. If plaster is use as an air tightness barrier seal over junction at floor with barrier tape

Design advice

Minimising condensation risk

See general guidance notes

Thermal Resistance of insulation used in details:

Wall (cavity) - 4.545 (m²K)/W

Notes for Section 5 for details

Separating floors require additional layers and components to comply with Section 2: Fire and Section 5: Noise

This example should be read in conjunction with the guidance in the introduction to this document. It illustrates the reduction of unwanted infiltration in buildings and provides a Psi value for this junction situation which can be used in calculation provided the principles outlined and any identified component specification are followed.
**Thermal continuity checklist**

1. Check that there is no debris in the cavity.

**Air tightness checklist**

1. Ensure that any air tightness barrier used in the internal wall is continuous through floor construction. Seal around any penetrations through the air tightness barrier.

**Design advice**

**Minimising condensation risk**

See general guidance notes

Thermal Resistance of insulation used in details:
Wall (cavity) - 4.545 (m²K)/W

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**Masonry: Cavity Wall Insulation - Full fill**

**Timber Intermediate Floor**

Psi value = 0.0366W/mK

This example should be read in conjunction with the guidance in the introduction to this document. It illustrates the reduction of unwanted infiltration in buildings and provides a Psi value for this junction situation which can be used in calculation provided the principles outlined and any identified component specification are followed.
Masonry: Cavity Wall Insulation - Full fill

Ground Floor / Separating Wall junction - Timber susp. floor

Psi value = 0.1994W/mK

Air tightness checklist

1. Ensure that any air tightness barrier used in the wall overlaps with the barrier in the floor
2. Consider gluing joints between floor board

Air tightness barrier (plaster option shown)

Vapour control layer

Use air tightness tape at junction of air barrier in wall and floor. Seal between the wall and floor membrane with a flexible sealant or seal the gap between skirting board and floor using a flexible sealant

Air tightness barrier below timber floor finish

Insulation directly under flooring - supported on netting draped over joists and stapled at the required depths

Sub floor ventilation should be provided, minimum 1500mm² per run of external wall or 500mm² per m² of floor area

Air tightness checklist

1. Ensure that any air tightness barrier used in the wall overlaps with the barrier in the floor
2. Consider gluing joints between floor board

Design advice

Minimising condensation risk

1. Check that all ventilation paths are clear before installing the floor insulation

Alternative Detail

2. Lightweight thermal blockwork can be used in the separating wall to improve the thermal performance but this will also reduce the acoustic performance of the wall. If this alternative is used then additional elements will be required to meet Section 5 of the Technical Standards.

Thermal Resistance of insulation used in details:

Internal Wall - 1.136 (m²K)/W
Floor - 5.455 (m²K)/W

This example should be read in conjunction with the guidance in the introduction to this document. It illustrates the reduction of unwanted infiltration in buildings and provides a Psi value for this junction situation which can be used in calculation provided the principles outlined and any identified component specification are followed.
**Thermal continuity checklist**

1. Ensure that insulation is tightly fitted against the separating wall.

**Air tightness checklist**

1. Check that there are no gaps between the wall and floor constructions.
2. Check that any air tightness barrier used in the wall overlaps with the barrier in the floor.

**Design advice**

**Minimising condensation risk**

1. If a screed finish is used instead of a timber floor, use a strip of perimeter insulation with a minimum R value of 0.75 m²K/W for the depth of the screed.

**Alternative Detail**

2. Lightweight thermal blockwork can be used in the separating wall to improve the thermal performance but this will also reduce the acoustic performance of the wall. If this alternative is used then additional elements will be required to meet Section 5 of the Technical Standards.

**Thermal Resistance of insulation used in details:**

- Insulated infill strip - 1.136 (m²K)/W
- Floor - 3.864 (m²K)/W

**Psi value = 0.202W/mK**

This example should be read in conjunction with the guidance in the introduction to this document. It illustrates the reduction of unwanted infiltration in buildings and provides a Psi value for this junction situation which can be used in calculation provided the principles outlined and any identified component specification are followed.
Masonry: Cavity Wall Insulation - Full fill
Concrete Ground Floor/ Separating Wall: Insulation Above Slab

Details:

**Psi value = 0.207W/mK**

**Thermal continuity checklist**

1. Ensure that insulation is tightly fitted against the separating wall

**Air tightness checklist**

1. Check that there are no gaps between the wall and floor constructions
2. Ensure that any air tightness barrier used in the wall overlaps onto the floor slab

**Design advice**

**Minimising condensation risk**
1. Ensure that concrete slab is level and clear of debris before fitting the insulation at floor level
2. If a screed finish is used instead of a timber floor, use a strip of perimeter insulation with a minimum R value of 0.75 m²K/W for the depth of the screed

**Alternative Detail**
3. Lightweight thermal blockwork can be used in the separating wall to improve the thermal performance but this will also reduce the acoustic performance of the wall. If this alternative is used then additional elements will be required to meet Section 5 of the Technical Standards.

**Thermal Resistance of insulation used in details:**
- Internal Wall - 1.136 (m²K)/W
- Insulated infill strip - 0.455 (m²K)/W
- Floor - 3.864 (m²K)/W

This example should be read in conjunction with the guidance in the introduction to this document. It illustrates the reduction of unwanted infiltration in buildings and provides a Psi value for this junction situation which can be used in calculation provided the principles outlined and any identified component specification are followed.
**Thermal continuity checklist**

1. Ensure that there are no gaps between floor slabs or between the top of the wall and the underside of the floor slab.

2. Ensure that the insulation is tightly fitted to the top of the floor slab.

**Air tightness checklist**

1. Ensure that any air tightness barrier used in the internal wall overlaps with the barrier in the floor or ceiling.

**Design advice**

**Minimising condensation risk**

1. Check that concrete slab is level and clear of debris before fitting the insulation at floor level.

---

**Psi value = 0.2698W/mK**

**Concrete Intermediate Floor / Separating Wall junction**

This example should be read in conjunction with the guidance in the introduction to this document. It illustrates the reduction of unwanted infiltration in buildings and provides a Psi value for this junction situation which can be used in calculation provided the principles outlined and any identified component specification are followed.

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**HEAT 2.7 software image of isotherms through junction detail.**

For illustrative purposes only.
**Masonry: Cavity Wall Insulation - Full fill**

**Timber Intermediate Floor / Separating Wall junction**

**Psi value** = 0.0028W/mK

**Design advice**

Minimising condensation risk

See general guidance notes

---

**Thermal continuity checklist**

1. Ensure that there are no gaps between the floors and the separating wall.

---

**Air tightness checklist**

1. Ensure that any air tightness barrier used in the internal wall overlaps with the barrier in the floor or ceiling.

**Alternative:**
If the air tightness barrier is installed onto the face of the blockwork wall and runs continuously through the floor construction, infill any gaps where floor fixing is made to external wall.

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**HEAT 2.7 software image of isotherms through junction detail.**

For illustrative purposes only.

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This example should be read in conjunction with the guidance in the introduction to this document. It illustrates the reduction of unwanted infiltration in buildings and provides a Psi value for this junction situation which can be used in calculation provided the principles outlined and any identified component specification are followed.

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**Masonry: Cavity Wall Insulation - Full fill**

**Timber Intermediate Floor / Separating Wall junction**

**Detail 1.20**
**Thermal continuity checklist**

1. Install a cavity barrier at the top of the wall
2. Ensure that insulation layers in the roof are fitted perpendicularly, to cover junctions

**Air tightness checklist**

1. Check that there are no gaps between the top of the masonry wall and the underside of the roof
2. Check that the air tightness barrier used in the ceiling overlaps with the barrier in the wall

**Design advice**

**Minimising condensation risk**

1. Check ventilation paths are clear before installing insulation above the ceiling

**Thermal Resistance of insulation used in details:**

5RRIP (\(\Psi\) value) not exceeding 0.025 W/mK should be installed between wall and the last joist

For more information on acoustic details see guidance in Section 5 of the Technical Standards

**Cavity barrier giving 30 minute fire resistance - ensure cavity barrier is not breached by inappropriate rigid sheathing insulation material**

**Minimum 50mm strip of rigid insulation with thermal conductivity (\(\Psi\) value) not exceeding 0.025 W/mK should be installed between wall and the last joist**

For more information on acoustic details see guidance in Section 5 of the Technical Standards

**HEAT 2.7 software image of isotherms through junction detail.**

For illustrative purposes only.

This example should be read in conjunction with the guidance in the introduction to this document. It illustrates the reduction of unwanted infiltration in buildings and provides a Psi value for this junction situation which can be used in calculation provided the principles outlined and any identified component specification are followed.

**Psi value = 0.0934 W/mK**

**Masonry: Cavity Wall Insulation - Full fill**

**Pitched Roof: Cold Roof / Separating Wall junction**

**Detail 1.21**
**Thermal continuity checklist**

1. Install a cavity barrier at the top of the wall
2. Ensure that insulation layers in roof are fitted perpendicularly, to cover junctions

---

**Air tightness checklist**

1. Check that there are no gaps between the top of the masonry wall and the underside of the roof
2. Ensure that the air tightness barrier used in the ceiling overlaps with the barrier in the wall

---

**Design advice**

**Minimising condensation risk**

1. Check ventilation paths are clear before installing insulation above the ceiling

**Thermal Resistance of insulation used in details:**

- Internal Wall: $1.136 \text{ (m}^2\text{K})/\text{W}$
- Infill strip at joists: $1.818 \text{ (m}^2\text{K})/\text{W}$
- Roof: $9.500 \text{ (m}^2\text{K})/\text{W}$

Note: See detail numbers 1.03, 1.04 and 1.05 for other junctions using this roof construction

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**Psi value**

- $0.1141 \text{ W/mK}$

**Masonry: Cavity Wall Insulation - Full fill**

**Pitched Roof: Ventilated Batten Void/ Separating Wall junction**

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**HeAT 2.7 software image of isotherms through junction detail.**

For illustrative purposes only.

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This example should be read in conjunction with the guidance in the introduction to this document. It illustrates the reduction of unwanted infiltration in buildings and provides a Psi value for this junction situation which can be used in calculation provided the principles outlined and any identified component specification are followed.

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Note: this construction is typically used where there are habitable rooms within the roof construction.

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Where two insulation types are used together see supplementary guidance.

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Air tightness barrier, plaster shown.

For more information on acoustic details see guidance in Section 5 of the Technical Standards.
**Thermal continuity checklist**

1. Check that there is no debris in the cavity

**Air tightness checklist**

1. Check that any air tightness barrier used in the external walls overlaps at the corner

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**Design advice**

**Minimising condensation risk**

See general guidance notes

Thermal Resistance of insulation used in details:

- Wall (cavity) - 4.545 (m²K)/W

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**Psi value = 0.0645W/mK**

Masonry: Cavity Wall Insulation - Full fill

Wall Junction

This example should be read in conjunction with the guidance in the introduction to this document. It illustrates the reduction of unwanted infiltration in buildings and provides a Psi value for this junction situation which can be used in calculation provided the principles outlined and any identified component specification are followed.
Thermal continuity checklist

1. Check that there is no debris in the cavity.

Air tightness checklist

1. Ensure that any air tightness barrier used in the external walls overlaps at the corner.

Design advice

Minimising condensation risk

See general guidance notes

Thermal Resistance of insulation used in details:

Wall (cavity) - 4.545 (m²K/W)

This example should be read in conjunction with the guidance in the introduction to this document. It illustrates the reduction of unwanted infiltration in buildings and provides a Psi value for this junction situation which can be used in calculation provided the principles outlined and any identified component specification are followed.

Psi value = -0.1191W/mK

Masonry: Cavity Wall Insulation - Full fill
Wall Junction - Inward Corner

Plan view

Air tightness barrier, plaster shown
Insulation between the masonry walls. This insulation must be tightly fitted, leaving no gaps. Use one continuous piece of insulation around the corner junction.