INTRODUCTION

The details in this section have been developed for a range of externally insulated single leaf masonry/cavity block wall constructions. The Introduction document "Limiting Thermal Bridging and Air Infiltration Acceptable Construction Details" provides practical information with regards to implementation of these details onsite. This guide should be read in conjunction with these details. Details are given for the junctions with a range of roof, ground floor and internal floor types, as well as at external wall opes.

The details are indicative. They focus on the issues of thermal performance and air tightness. Other issues are not considered fully. Insulation thicknesses for the main building elements have not been provided, as these depend on the thermal properties of the materials chosen, as well as on the desired U-value.

Masonry materials shown on the drawings are blocks and bricks. Other masonry materials, including precast and insitu concrete, may be substituted without loss of thermal performance or increased technical risk. The use of thermally resistant materials, beyond that depicted, will naturally increase the thermal performance of the building fabric.

All materials and workmanship are to be installed in accordance with Technical Guidance Document D "Materials and workmanship."

All details are shown with a thin coat render system for simplification. However, a range of cladding may be used without any loss of thermal performance. All external cladding systems should be proper materials as defined in Part D. It is recommended that insulating and cladding components are part of a system to ensure compatibility.

These diagrams illustrate good practice for design and construction of interfaces only in respect to ensuring thermal performance and air barrier continuity. The guidance must be implemented with due regard to all other requirements imposed by the Building Regulations.

Where these details are used for the Target U Values and constructions described in Table D2 of TGD L 2011 the psi values published in Table D2 may be used to calculate the actual Thermal Bridging heat loss for a dwelling for key thermal bridging junctions in that dwelling.
### Table D2 - External Insulation

<table>
<thead>
<tr>
<th>Junction detail</th>
<th>Section 2 - External Insulation</th>
<th>Target U-Values</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>U = 0.21 W/m²K (roof U = 0.34, floor U = 0.21)</td>
</tr>
<tr>
<td></td>
<td>Junction detail</td>
<td>ψ-value (W/m²K)</td>
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<tr>
<td><strong>Section 2 Details</strong></td>
<td></td>
<td></td>
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<tr>
<td>2.01</td>
<td>Ground Floor - Insulation above slab with lightweight block</td>
<td>0.131</td>
</tr>
<tr>
<td>2.01a</td>
<td>Ground Floor - Insulation above slab</td>
<td>0.214</td>
</tr>
<tr>
<td>2.02</td>
<td>Ground Floor - Insulation below slab with lightweight block</td>
<td>0.162</td>
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<tr>
<td>2.02a</td>
<td>Ground Floor - Insulation below slab</td>
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<tr>
<td>2.03</td>
<td>Timber Suspended Ground Floor with lightweight block</td>
<td>0.158</td>
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<tr>
<td>2.03a</td>
<td>Timber Suspended Ground Floor</td>
<td>0.297</td>
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<td>2.04</td>
<td>Concrete Intermediate Floor within a dwelling</td>
<td>0.001</td>
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<tr>
<td>2.04a</td>
<td>Concrete Separating Floor between dwellings</td>
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<tr>
<td>2.05</td>
<td>Masonry Separating Wall - plan</td>
<td>0.040</td>
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<tr>
<td>2.06</td>
<td>Masonary Partition Wall</td>
<td>0.000</td>
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<tr>
<td>2.07</td>
<td>Stud Partition Wall</td>
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<td>2.08/2.09</td>
<td>Eaves - Unventilated/Ventilated roof space</td>
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<td>2.10/2.11.1</td>
<td>Eaves - Unventilated/Ventilated - Insulation between and under rafters - Dormer</td>
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<td>2.12.1</td>
<td>Eaves - Unventilated - Insulation between and over rafters - Pitched ceiling</td>
<td>0.016</td>
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<td>2.12.2</td>
<td>Eaves - Unventilated/Ventilated - Insulation between and under rafters - Pitched with flat ceiling</td>
<td>0.020</td>
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<tr>
<td>2.13</td>
<td>Eaves - Unventilated - Insulation between and over rafters -</td>
<td>0.013</td>
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<tr>
<td>2.14</td>
<td>Ventilated Roof - Attic floor level</td>
<td>0.347</td>
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<tr>
<td>2.15/2.16</td>
<td>Gable - Insulation between and under rafters - Unventilated/Ventilated rafter void</td>
<td>0.091</td>
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<tr>
<td>2.17</td>
<td>Gable - Insulation between and over rafters - Unventilated rafter void</td>
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<td>Flat Roof - Eaves</td>
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<td>Flat Roof - Parapet</td>
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<td>2.20</td>
<td>Ope - Lintel</td>
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<td>2.21</td>
<td>Ope - Jamb</td>
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<td>2.22</td>
<td>Sill</td>
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<tr>
<td>2.23.1</td>
<td>Corner</td>
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<tr>
<td>2.23.2</td>
<td>Inverted Corner</td>
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</tr>
</tbody>
</table>

### Section 6 - General Details

- G.01.1 Masonary Separating Wall Head - Section
- G.01.2 Masonary Separating Wall Head - Section
- G.05.1 Solid Masonary Separating Wall through ground floor
- G.05.2 Solid Masonary (narrow) Partition Wall through ground floor

### Other Details

- 2.8.1 Balcony within dwelling
- 2.8.2 Balcony between dwelling

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1. ψ values for a Target U-value for the wall of 0.21 W/m²K can be used for a range of U-values down to 0.18 W/m²K for the construction type specified. The U-values of the flanking elements to the wall can vary from the flanking element target U-value as follows: Pitched roof insulation on slope, insulation on ceiling = 0.13 to 0.16 W/m²K; Flat Roof = 0.16 to 0.2 W/m²K; Ground Floor = 0.16 to 0.21 W/m²K.

2. ψ values for a Target U-value for the wall of 0.15 W/m²K can be used for a range of U-values from 0.12 W/m²K to 0.17 W/m²K for the construction type specified. The U-values of the flanking elements to the wall can vary from the flanking element target U-value as follows: Pitched roof insulation on slope, insulation on ceiling 0.11 to 0.16 W/m²K; Flat Roof = 0.11 to 0.17 W/m²K; Ground Floor = 0.12 to 0.18.

3. Where two building elements have one U-value above its target while the other is below its target U-value, the aggregate percentage change from the respective target U-values in the table should not exceed +20% for the Psi (ψ) value to be valid, i.e. if for the 0.15 U-value wall, if the U-value was increased by 10% above the wall target U-value (from 0.15 to 0.165), then the roof U-value could be at most 10% below the roof target U-value (from 0.14 to 0.126), because the aggregate change would then be 20%.

4. This is an externally supported balcony (the balcony slab is not a continuation of the floorslab) where the wall insulation is continuous and not bridged by the balcony slab.

5. Value of Ψ is applied to each dwelling.

6. Psi value is for whole junction. Half the value should be applied to each dwelling on either side of the junction.
THERMAL PERFORMANCE

CHECKLIST (TICK ALL)

Floor insulation to tightly abut blockwork wall

Ensure wall insulation is installed at least 225 mm below top of floor insulation

Ensure block with a maximum Thermal Conductivity of 0.20 W/mK in the direction of heat flow is used and that block is suitable for use in foundations

AIR BARRIER - CONTINUITY

CHECKLIST (TICK ALL)

Seal between wall and floor air barrier with a flexible sealant OR seal gap between skirting board and floor with a flexible sealant

Seal all penetrations through air barrier using a flexible sealant

GENERAL NOTES

The wall insulation installed below the wall DPC must be fit for purpose with regards to water absorption

Material on top of floor insulation can be screed or floating floor

Detail applicable:- Ground-bearing floor; raft foundation; in-situ suspended ground floor slab; pre-cast suspended ground floor. Insulation above slab, with timber floor finish

OPTION (TICK ONE)

AIR BARRIER - OPTIONS

☐ Wet-finish plaster coat, or

☐ Masonry wall with scratch coat, and finished with plasterboard, or

Plasterboard on dabs or battens, with continuous ribbon of adhesive tape around all openings, along top and bottom of wall, and at internal and external corners, or

☐ Airtightness membrane and tapes

ACCEPTABLE CONSTRUCTION DETAIL

Ground Floor - Insulation Above Slab with Lightweight Block

DETAIL 2.01, 2011
**THERMAL PERFORMANCE**

**CHECKLIST (TICK ALL)**

- Floor insulation to tightly abut blockwork wall
- Ensure wall insulation is installed at least 430 mm below ground level R-value 4.0 m²K/W

**AIR BARRIER - CONTINUITY**

**CHECKLIST (TICK ALL)**

- Seal between wall and floor air barrier with a flexible sealant OR seal gap between skirting board and floor with a flexible sealant
- Seal all penetrations through air barrier using a flexible sealant

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**GENERAL NOTES**

- The wall insulation installed below the wall DPC must be fit for purpose with regards to water absorption
- Material on top of floor insulation can be screed or floating floor
- Detail applicable: Ground-bearing floor; raft foundation; in-situ suspended ground floor slab; pre-cast suspended ground floor. Insulation above slab, with timber floor finish

**AIR BARRIER - OPTIONS**

- Wet-finish plaster coat, or
- Masonry wall with scratch coat, and finished with plasterboard, or
- Plasterboard on dabs or battens, with continuous ribbon of adhesive tape around all openings, along top and bottom of wall, and at internal and external corners, or
- Airtightness membrane and tapes

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**ACCEPTABLE CONSTRUCTION DETAIL**

Ground Floor - Insulation Above Slab

DETAIL 2.01a, 2011
(2) WALLS- EXTERNAL INSULATION
SOLID MASONARY / CAVITY BLOCK WALLS

**THERMAL PERFORMANCE**
CHECKLIST (TICK ALL)

- Floor insulation to tightly abut blockwork wall
- Install perimeter insulation with a Min. R-value of 1.1 m² K/W
- Ensure wall insulation is installed at least 225 mm below top of floor
- Ensure block with a maximum Thermal Conductivity of 0.20 W/mK in the direction of heat flow is used and that block is suitable for use in foundations

**AIR BARRIER - CONTINUITY**
CHECKLIST (TICK ALL)

- Seal between wall and floor air barrier with a flexible sealant OR seal gap between skirting board and floor with a flexible sealant
- Seal all penetrations through air barrier using a flexible sealant

**GENERAL NOTES**
The wall insulation installed below the wall DPC must be fit for purpose with regards to water absorption

**OPTION (TICK ONE) AIR BARRIER - OPTIONS**

- Wet-finish plaster coat, or
- Masonry wall with scratch coat, and finished with plasterboard, or
- Plasterboard on dabs or battens, with continuous ribbon of adhesive tape around all openings, along top and bottom of wall, and at internal and external corners, or
- Airtightness membrane and tapes

ACCEPTABLE CONSTRUCTION DETAIL
Ground Floor - Insulation Below Slab with Lightweight Block

DETAIL 2.02, 2011
**THERMAL PERFORMANCE CHECKLIST (TICK ALL)**

- Floor insulation to tightly abut blockwork wall
- Install perimeter insulation with a Min. R-value of 1.1 m² K/W
- Ensure wall insulation is installed at least 430 mm below ground level R-value 4.0 m² K/W

**GENERAL NOTES**

The wall insulation installed below the wall DPC must be fit for purpose with regards to water absorption

**AIR BARRIER - OPTIONS**

- Wet-finish plaster coat, or
- Masonry wall with scratch coat, and finished with plasterboard, or
- Plasterboard on dabs or battens, with continuous ribbon of adhesive tape around all openings, along top and bottom of wall, and at internal and external corners, or
- Airtightness membrane and tapes

**AIR BARRIER - CONTINUITY CHECKLIST (TICK ALL)**

- Seal between wall and floor air barrier with a flexible sealant OR seal gap between skirting board and floor with a flexible sealant
- Seal all penetrations through air barrier using a flexible sealant

Complying with checklist will help achieve design air permeability
### THERMAL PERFORMANCE

**CHECKLIST (TICK ALL)**

Pack gap between floor joist and blockwork wall with compressible insulation if over 25 mm; otherwise inject insulating expanding foam. Min. R-value of 0.63 m² K/W

Ensure wall insulation is installed at least 200 mm below top of floor insulation

Ensure insulation is in contact with underside of timber flooring

Ensure block with a maximum Thermal Conductivity of .20 W/mK in the direction of heat flow is used and that block is suitable for use in foundations

### GENERAL NOTES

Support joists on tassel walls to avoid building-in to external walls

The wall insulation installed below the wall DPC must be fit for purpose with regards to water absorption

If injecting expanding foam between joist and external wall, take care to avoid bridging wall DPC

### AIR BARRIER - OPTIONS

- Wet-finish plaster coat, or
- Masonry wall with scratch coat, and finished with plasterboard, or
- Plasterboard on dabs or battens, with continuous ribbon of adhesive tape around all openings, along top and bottom of wall, and at internal and external corners, or
- Airtightness membrane and tapes

**AIR BARRIER - CONTINUITY**

**CHECKLIST (TICK ALL)**

Seal between wall and floor air barrier with a flexible sealant OR seal gap between skirting board and floor with a flexible sealant

Seal joints in timber floor with suitable glue. Fully support and fix any square edge joints in the decking to the joists

Seal all penetrations through air barrier using a flexible sealant

Provide similar air seals at all internal partitions

Complying with checklist will help achieve design air permeability
**THERMAL PERFORMANCE CHECKLIST (TICK ALL)**

- Pack gap between floor joist and blockwork wall with compressible insulation if over 25 mm; otherwise inject insulating expanding foam. Min. R-value of 0.63 m²K/W
- Continue external insulation at least 750 mm below top of floor insulation
- Ensure insulation is in contact with underside of timber flooring

**AIR BARRIER - CONTINUITY CHECKLIST (TICK ALL)**

- Seal between wall and floor air barrier with a flexible sealant OR seal gap between skirting board and floor with a flexible sealant
- Seal all penetrations through air barrier using a flexible sealant
- Seal joints in timber floor with suitable glue. Fully support and fix any square edge joints in the decking to the joists
- Provide similar air seals at all internal partitions

**GENERAL NOTES**

- Support joists on tassel walls to avoid building-in to external walls
- The wall insulation installed below the wall DPC must be fit for purpose with regards to water absorption
- If injecting expanding foam between joist and external wall, take care to avoid bridging wall DPC

**OPTION (TICK ONE) AIR BARRIER - OPTIONS**

- Wet-finish plaster coat, or
- Masonry wall with scratch coat, and finished with plasterboard, or
- Plasterboard on dabs or battens, with continuous ribbon of adhesive tape around all openings, along top and bottom of wall, and at internal and external corners, or
- Airtightness membrane and tapes
### Concrete Intermediate Floor Within a Dwelling

#### THERMAL PERFORMANCE CHECKLIST (TICK ALL)
- Continue wall insulation across floor abutment zone

#### AIR BARRIER - CONTINUITY CHECKLIST (TICK ALL)
- Seal gap between skirting board and floor with a flexible sealant
- Seal between the wall air barrier and the top and underside of the floor slab. (Dotted blue line is notional, to depict air barrier continuity through floor zone.)
- Ensure continuous mortar bed between floor slab and top of blockwork wall
- Seal all penetrations through air barrier using flexible sealant

Complying with checklist will help achieve design air permeability.

#### GENERAL NOTES

#### OPTION (TICK ONE) AIR BARRIER - OPTIONS
- Wet-finish plaster coat, or
- Masonry wall with scratch coat, and finished with plasterboard, or
- Plasterboard on dabs or battens, with continuous ribbon of adhesive tape around all openings, along top and bottom of wall, and at internal and external corners, or
- Airtightness membrane and tapes

---

**Acceptable Construction Detail**

**Concrete Intermediate Floor Within a Dwelling**

**Detail 2.04, 2011**
**Concrete Separating Floor between Dwellings**

**THERMAL PERFORMANCE**

<table>
<thead>
<tr>
<th>Checklist (Tick All)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Continue wall insulation across floor abutment zone</td>
</tr>
</tbody>
</table>

**AIR BARRIER - CONTINUITY**

- Seal gap between skirting board and floor with a flexible sealant
- Seal between the wall air barrier and the top and underside of the floor slab. (Dotted blue line is notional, to depict air barrier continuity through floor zone.)
- Ensure continuous mortar bed between floor slab and top of blockwork wall
- Seal all penetrations through air barrier using flexible sealant

**GENERAL NOTES**

Detail is diagrammatic only. Acoustic insulation should be provided. See TGD-E

**OPTION**

<table>
<thead>
<tr>
<th>(Tick One)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Wet-finish plaster coat, or</td>
</tr>
<tr>
<td>Masonry wall with scratch coat, and finished with plasterboard, or</td>
</tr>
<tr>
<td>Plasterboard on dabs or battens, with continuous ribbon of adhesive tape around all openings, along top and bottom of wall, and at internal and external corners, or</td>
</tr>
<tr>
<td>Airtightness membrane and tapes</td>
</tr>
</tbody>
</table>

**ACCEPTABLE CONSTRUCTION DETAIL**

**Concrete Separating Floor between Dwellings**

**DETAIL 2.04a, 2011**
**GENERAL NOTES**

See TGD-B for guidance on fire safety and TGD-E for guidance on sound insulation

Read this detail in conjunction with detail G-01, Masonry Separating Wall Head

**THERMAL PERFORMANCE**

- Continue external wall insulation across abutment zone

**AIR BARRIER - CONTINUITY**

- Seal all penetrations through air barrier using a flexible sealant

**THERMAL PERFORMANCE CHECKLIST (TICK ALL)**

**OPTION (TICK ONE)**

- Wet-finish plaster coat, or
- Masonry wall with scratch coat, and finished with plasterboard, or
- Plasterboard on dabs or battens, with continuous ribbon of adhesive tape around all openings, along top and bottom of wall, and at internal and external corners, or
- Airtightness membrane and tapes

**ACCEPTABLE CONSTRUCTION DETAIL**

See TGD-B for guidance on fire safety and TGD-E for guidance on sound insulation

Read this detail in conjunction with detail G-01, Masonry Separating Wall Head
When partition wall is built later than external wall, ensure air barrier continuity across junction.

Seal between air barrier on external wall and the blockwork, to the partition wall. (Dotted blue line is notional to depict air barrier continuity through partition, depending on whether partition toothed into external wall or braced with ties.)

Seal all penetrations through air barrier using a flexible sealant.

GENERAL NOTES

Read this detail in conjunction with detail G-02, Blockwork Partition Head.

ACCEPTABLE CONSTRUCTION DETAIL

Masonry Partition Wall

DETAIL 2.06, 2011
Complying with checklist qualifies builder to claim value in Table 3 of IP 1/06 and Table K1 of DEAP 2006.

Read this detail in conjunction with details G-03, Timber Stud Partition Head, or G-04, Metal Stud Partition Head as appropriate.

Continue external wall insulation across abutment zone.

Install external air barrier before stud; or install barrier before partition lining and seal all gaps between air barrier and stud with flexible sealant. (Dotted blue line depicts air barrier continuity through partition stud member)

Seal all penetrations through air barrier using a flexible sealant.

Acceptable construction detail:

Wet-finish plaster coat, or
Masonry wall with scratch coat, and finished with plasterboard, or
Plasterboard on dabs or battens, with continuous ribbon of adhesive tape around all openings, along top and bottom of wall, and at internal and external corners, or
Airtightness membrane and tapes.
Eaves - Unventilated Attic

**THERMAL PERFORMANCE**

Ensure continuity of insulation throughout junction

Ensure full depth of insulation between and over joists abuts eaves insulation

Ensure gap between wall plate and proprietary eaves vent is completely filled with insulation having a min. R-value across the insulation thickness of 4.30 m² K/W

**AIR BARRIER - CONTINUITY**

Bed wall plate on continuous mortar bed

Fix ceiling first, and seal all gaps between ceiling and masonry wall with either plaster, adhesive or flexible sealant

Seal all penetrations through air barrier using a flexible sealant

Complying with checklist will help achieve design air permeability

**GENERAL NOTES**

Use of over joist and under rafter insulation is considered best practice, as it eliminates the cold bridge caused by the joist

Use vapour permeable roof underlay to be used in strict accordance with approved third party certification

Eaves insulation must not prevent free water drainage below the tiling battens

Read this detail in conjunction with detail 2-14, Gable - Unventilated Rafter Void for joist adjacent to gable wall

**OPTION (TICK ONE)**

**AIR BARRIER - OPTIONS**

- Wet-finish plaster coat, or
- Masonry wall with scratch coat, and finished with plasterboard, or
- Plasterboard on dabs or battens, with continuous ribbon of adhesive tape around all openings, along top and bottom of wall, and at internal and external corners, or
- Airtightness membrane and tapes

Acceptable Construction Detail: Eaves - Unventilated Attic

Detail: 2.08, 2011
Use of over joist insulation is considered best practice, as it eliminates the cold bridge caused by the joist.

Read this detail in conjunction with detail 2-14, Gable at Attic Floor Level

**GENERAL NOTES**

- Thermal performance of junction can be improved by incorporating an eaves wind barrier (plywood, OSB, softboard or other suitable material) around insulation to be sealed to connect with the ventilator strip thereby mitigating wind chill from the vent inlet in the eaves.
- Use of over joist insulation is considered best practice, as it eliminates the cold bridge caused by the joist.
- Use a proprietary eaves ventilator to ensure ventilation in accordance with BS5250. Installation of the eaves ventilator must not prevent free water drainage below the tiling battens.
- Fire stopping to be provided where necessary using suitable insulant as per certification details.

**AIR BARRIER - CONTINUITY**

- Bed wall plate on continuous mortar bed
- Fix ceiling first, and seal all gaps between ceiling and masonry wall with either plaster, adhesive or flexible sealant
- Seal all penetrations through air barrier using a flexible sealant

**AIR BARRIER - OPTIONS**

- Wet-finish plaster coat, or
- Masonry wall with scratch coat, and finished with plasterboard, or
- Plasterboard on dabs or battens, with continuous ribbon of adhesive tape around all openings, along top and bottom of wall, and at internal and external corners, or
- Airtightness membrane and tapes

**THERMAL PERFORMANCE**

- Ensure continuity of insulation throughout junction
- Ensure full depth of insulation between and over joists extends to inner edge of wall plate
- Ensure gap between wall plate and proprietary eaves vent is completely filled with insulation having a min. R-value across the insulation thickness of 4.30 m² K/W

Complying with checklist will help achieve design air permeability.
(2) WALLS - EXTERNAL INSULATION
SOLID MASONRY / CAVITY BLOCK WALLS

THERMAL PERFORMANCE
CHECKLIST (TICK ALL)

Ensure continuity of insulation throughout junction

Ensure insulation is installed tightly between rafters and is in contact with under-rafter insulation

Ensure full depth of insulation between and over joists abuts eaves insulation

Ensure gap between wall plate and proprietary eaves vent is completely filled with insulation having a min. R-value across the insulation thickness of 4.30 m²K/W

Fire stopping to be provided where necessary using suitable insulant as per certification details

GENERAL NOTES
Vapour permeable roof underlay to be used in strict accordance with approved third party certification

Installation of the eaves insulation must not prevent free water drainage below the tiling battens

If required by BS5250, use vapour control plasterboard or separate vapour control layer behind plasterboard.

Use of over joist and under rafter insulation is considered best practice, as it eliminates the cold bridge caused by the joist/rafter

Read this detail in conjunction with detail 2-15, Gable - Unventilated Rafter Void

AIR BARRIER - OPTIONS

OPTION (TICK ONE)

Wet-finish plaster coat, or

Masonry wall with scratch coat, and finished with plasterboard, or

Plasterboard on dabs or battens, with continuous ribbon of adhesive tape around all openings, along top and bottom of wall, and at internal and external corners, or

Airtightness membrane and tapes

ACCEPTABLE CONSTRUCTION DETAIL

Eaves - Insulation between and under rafters
Unventilated Rafter Void - Dormer

AIR BARRIER - CONTINUITY
CHECKLIST (TICK ALL)

Bed wall plate on continuous mortar bed

Install double, full depth timber nogging between floor joists, and seal between nogging, ceiling and upper stud wall with a flexible sealant.

(Dotted blue line is notional, to depict air barrier continuity through nogging.)

Fix ceiling first, and seal all gaps between ceiling and masonry wall with either plaster, adhesive or flexible sealant

Seal all penetrations through air barrier using a flexible sealant

Complying with checklist will help achieve design air permeability

DETAIL 2.10.1, 2011
**Eaves - Insulation between and under rafters - Ventilated Rafter Void - Dormer**

**THERMAL PERFORMANCE**

**CHECKLIST (TICK ALL)**

- Ensure continuity of insulation throughout junction
- Ensure insulation is installed tightly between rafters and is in contact with under-rafter insulation
- Ensure full depth of insulation between and over joists abuts eaves insulation
- Ensure gap between wall plate and proprietary eaves vent is completely filled with insulation having a min. R-value of 4.30 m² K/W

**AIR BARRIER - CONTINUITY**

**CHECKLIST (TICK ALL)**

- Bed wall plate on continuous mortar bed
- Install double, full depth timber nogging between floor joists, and seal between nogging, ceiling and upper stud wall with a flexible sealant.
- Seal all penetrations through air barrier using a flexible sealant
- Fix ceiling first, and seal all gaps between ceiling and masonry wall with either plaster, adhesive or flexible sealant

**GENERAL NOTES**

Thermal performance of junction can be improved by incorporating an eaves wind barrier (plywood, OSB, softboard or other suitable material) around insulation to be sealed to connect with the ventilator strip thereby mitigating wind chill from the vent inlet in the eaves.

Use a proprietary eaves ventilator to ensure ventilation in accordance with BS5250. Installation of the eaves ventilator must not prevent free water drainage below the tiling battens.

If required by BS5250, use vapour control plasterboard or separate vapour control layer behind plasterboard.

Use of over joist and under rafter insulation is considered best practice, as it eliminates the cold bridge caused by the joist/rafter.

Read this detail in conjunction with detail 2-16, Gable - Ventilated Rafter Void.

**OPTION (TICK ONE)**

**AIR BARRIER - OPTIONS**

- Wet-finish plaster coat, or
- Masonry wall with scratch coat, and finished with plasterboard, or
- Plasterboard on dabs or battens, with continuous ribbon of adhesive tape around all openings, along top and bottom of wall, and at internal and external corners, or
- Airtightness membrane and tapes

**ACCEPTABLE CONSTRUCTION DETAIL**

Eaves - Insulation between and under rafters
Ventilated Rafter Void - Dormer

DETAIL 2.11.1, 2011
**THERMAL PERFORMANCE CHECKLIST (TICK ALL)**

- Ensure continuity of insulation throughout junction
- Ensure insulation is installed tightly between rafters and is in contact with under-rafter insulation
- Ensure gap between wall plate and proprietary eaves vent is completely filled with insulation having a min. R-value across the insulation thickness of 4.30 m² K/W
- Ensure full depth of insulation between and below rafters abuts eaves insulation

**AIR BARRIER - CONTINUITY CHECKLIST (TICK ALL)**

- Bed wall plate on continuous mortar bed
- Fix ceiling first, and seal all gaps between ceiling and masonry wall with either plaster, adhesive or flexible sealant
- Seal all penetrations through air barrier using a flexible sealant

**GENERAL NOTES**
Thermal performance of junction can be improved by incorporating an eaves wind barrier (plywood, OSB, softboard or other suitable material) around insulation to be sealed to connect with the ventilator strip thereby mitigating wind chill from the vent inlet in the eaves.

Use a proprietary eaves ventilator to ensure ventilation in accordance with BS5250. Installation of the eaves ventilator must not prevent free water drainage below the tiling battens.

If required by BS5250, use vapour control plasterboard or separate vapour control layer behind plasterboard.

Use of over joist and under rafter insulation is considered best practice, as it eliminates the cold bridge caused by the joist/rafter.

Read this detail in conjunction with detail 2-16, Gable - Ventilated Rafter Void.

**OPTION (TICK ONE)**

- Wet-finish plaster coat, or
- Masonry wall with scratch coat, and finished with plasterboard, or
- Plasterboard on dabs or battens, with continuous ribbon of adhesive tape around all openings, along top and bottom of wall, and at internal and external corners, or
- Airtightness membrane and tapes

**ACCEPTABLE CONSTRUCTION DETAIL**
**Eaves - Insulation between and under rafters Ventilated Rafter Void - Pitched ceiling**

**DETAIL 2.12.1 + 2.12.2, 2011**
### THERMAL PERFORMANCE CHECKLIST (TICK ALL)

- Ensure continuity of insulation throughout junction
- Ensure insulation is installed tightly between rafters and is in contact with over-rafter insulation
- Ensure full depth of insulation between and over joists abuts eaves insulation
- Ensure gap between wall plate and proprietary eaves vent is completely filled with insulation having a min. R-value across the insulation thickness of 4.30 m² K/W

### AIR BARRIER - CONTINUITY CHECKLIST (TICK ALL)

- Bed wall plate on continuous mortar bed
- Install double, full depth timber nogging between floor joists, and seal between nogging, ceiling and upper stud wall with a flexible sealant. (Dotted blue line is notional, to depict air barrier continuity through noggings.)
- Seal all penetrations through air barrier using a flexible sealant
- Fix ceiling first, and seal all gaps between ceiling and masonry wall with either plaster, adhesive or flexible sealant

**Complying with checklist will help achieve design air permeability**

### GENERAL NOTES

Vapour permeable roof underlay to be used in strict accordance with approved third party certification

If required by BS5250, use vapour control plasterboard or separate vapour control layer behind plasterboard.

Use of over-rafter insulation is considered best practice, as it eliminates the cold bridge caused by the joist/rafter

Read this detail in conjunction with detail 2-17, Gable - Insulation between and over rafters

### OPTION (TICK ONE) AIR BARRIER - OPTIONS

- Wet-finish plaster coat, or
- Masonry wall with scratch coat, and finished with plasterboard, or
- Plasterboard on dabs or battens, with continuous ribbon of adhesive tape around all openings, along top and bottom of wall, and at internal and external corners, or
- Airtightness membrane and tapes
(2) WALLS: EXTERNAL INSULATION
SOLID MASONARY / CAVITY BLOCK WALLS

VENTILATED ROOF - ATTIC FLOOR LEVEL

THERMAL PERFORMANCE
CHECKLIST (TICK ALL)

- Continue wall insulation to at least 1 meter above top of attic insulation
- Ensure full depth of insulation between and over joists extends to inner edge of wall
- Pack compressible insulation between last truss or joist, and gable wall. Min. R-value across the insulation thickness of 1.25 m²K/W

AIR BARRIER - CONTINUITY
CHECKLIST (TICK ALL)

- Seal all penetrations through air barrier using a flexible sealant
- Fix ceiling first, and seal all gaps between ceiling and masonry wall with either plaster, adhesive or flexible sealant

GENERAL NOTES
Thermal performance of junction can be improved significantly by using blockwork with a thermal conductivity of ≤20 W/mK in direction of heat flow in wall at roof level or alternatively by running insulation of R-value 1.5 m²K/W vertically up internal face of gable wall to a height of 450 mm above ceiling level
Use of over joist insulation is considered best practice, as it eliminates the cold bridge caused by the joist
Where different block materials are being used consideration should be given to avoid cracking in plaster at the junction between the block materials
Read this detail in conjunction with details 2-08: Eaves - Ventilated Attic, or 2-09: Eaves - Unventilated Attic, as appropriate

ACCEPTABLE CONSTRUCTION DETAIL

VENTILATED ROOF - ATTIC FLOOR LEVEL

OPTION (TICK ONE)

AIR BARRIER - OPTIONS

- Wet-finish plaster coat, or
- Masonry wall with scratch coat, and finished with plasterboard, or
- Plasterboard on dabs or battens, with continuous ribbon of adhesive tape around all openings, along top and bottom of wall, and at internal and external corners, or
- Airtightness membrane and tapes
THERMAL PERFORMANCE

CHECKLIST (TICK ALL)

Fit insulation over top of wall within gable ladder. Fully fill void unless underlay requires to be draped, when 25 mm void must be maintained. A min. R-value of 4.35 m² K/W is required.

Ensure top of wall is levelled with mortar to correct pitch, and that wall insulation is taken up level with wall top.

Ensure insulation continuity throughout junction.

Ensure full depth of insulation between and under rafters extends to wall. Pack gap between rafter and wall with compressible insulation.

Ensure insulation is installed tightly between rafters and is in contact with under rafter insulation.

GENERAL NOTES

Vapour permeable roof underlay to be used in strict accordance with approved third party certification.

If required by BS5250, use vapour control plasterboard or separate vapour control layer behind plasterboard.

Use of under-rafter insulation is considered best practice, as it eliminates the cold bridge caused by the rafter.

Read this detail in conjunction with detail 2-11: Eaves - Insulation between and under rafters - Unventilated Rafter Void.

ACCEPTABLE CONSTRUCTION DETAIL

Gable - Insulation between and under rafters - Unventilated Rafter Void

DETAIL 2.15, 2011

AIR BARRIER - CONTINUITY

CHECKLIST (TICK ALL)

Seal all penetrations through air barrier using a flexible sealant.

Fix ceiling first, and seal all gaps between ceiling and masonry wall with either plaster, adhesive or flexible sealant.

Complying with checklist will help achieve design air permeability.

AIR BARRIER - OPTIONS

OPTION (TICK ONE)

Wet-finish plaster coat, or

Masonry wall with scratch coat, and finished with plasterboard, or

Plasterboard on dabs or battens, with continuous ribbon of adhesive tape around all openings, along top and bottom of wall, and at internal and external corners, or

Airtightness membrane and tapes
Gable - Insulation between and under rafters - Ventilated Rafter Void

**THERMAL PERFORMANCE**

- Fit insulation over top of wall within gable ladder. Fully fill void unless underlay requires to be draped, when 25 mm void must be maintained. A min. R-value of 4.35 m² K/W is required.
- Ensure top of wall is levelled with mortar to correct pitch, and that wall insulation is taken up level with wall top.
- Ensure insulation continuity throughout junction.
- Ensure full depth of insulation between and under rafters extends to wall. Pack gap between rafter and wall with compressible insulation.
- Ensure insulation is installed tightly between rafters and is in contact with under rafter insulation.

**GENERAL NOTES**

- Ensure ventilation to roof build-up in accordance with BS5250
- If required by BS5250, use vapour control plasterboard or separate vapour control layer behind plasterboard
- Use of under rafter insulation is considered best practice, as it eliminates the cold bridge caused by the rafter
- Read this detail in conjunction with detail 2-10, : Eaves - Ventilated Rafter Void, or 2-12: Eaves - Ventilated Rafter Void - Pitched ceiling, as appropriate

**AIR BARRIER - OPTIONS**

- Wet-finish plaster coat, or
- Masonry wall with scratch coat, and finished with plasterboard, or
- Plasterboard on dabs or battens, with continuous ribbon of adhesive tape around all openings, along top and bottom of wall, and at internal and external corners, or
- Airtightness membrane and tapes

**AIR BARRIER - CONTINUITY**

- Seal all penetrations through air barrier using a flexible sealant
- Fix ceiling first, and seal all gaps between ceiling and masonry wall with either plaster, adhesive or flexible sealant

Complying with checklist will help achieve design air permeability

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**ACCEPTABLE CONSTRUCTION DETAIL**

Gable - Insulation between and under rafters - Ventilated Rafter Void

DETAIL 2.16, 2011
**THERMAL PERFORMANCE CHECKLIST (TICK ALL)**

- Fit insulation over top of wall within gable ladder. Fully fill void between wall head and over-rafter insulation. A min. R-value of 2.10 m² K/W is required.

- Ensure top of wall is levelled with mortar to correct pitch, and that wall insulation is taken up level with wall top.

- Ensure full depth of insulation between and over rafters extends to wall. Pack gap between rafter and wall with compressible insulation.

- Ensure insulation is installed tightly between rafters and is in contact with over-rafter insulation.

**AIR BARRIER - CONTINUITY CHECKLIST (TICK ALL)**

- Seal all penetrations through air barrier using a flexible sealant.

- Fix ceiling first, and seal all gaps between ceiling and masonry wall with either plaster, adhesive or flexible sealant.

**GENERAL NOTES**

Vapour permeable roof underlay to be used in strict accordance with approved third party certification.

If required by BS5250, use vapour control plasterboard or separate vapour control layer behind plasterboard.

Use of over-rafter insulation is considered best practice, as it eliminates the cold bridge caused by the rafter.

Read this detail in conjunction with detail 2-13, Eaves - Insulation between and over rafters.

**OPTION (TICK ONE)**

- Wet-finish plaster coat, or

- Masonry wall with scratch coat, and finished with plasterboard, or

- Plasterboard on dabs or battens, with continuous ribbon of adhesive tape around all openings, along top and bottom of wall, and at internal and external corners, or

- Airtightness membrane and tapes

**ACCEPTABLE CONSTRUCTION DETAIL**

Gable - Insulation between and over rafters - Unventilated Rafter Void
THERMAL PERFORMANCE
CHECKLIST (TICK ALL)

Ensure full depth of over deck insulation extends to roof edge

Fit insulation over wall top within gable ladder. Fully fill void, ensuring that insulation is installed tightly between joists and is in contact with roof deck. A min. R-value of 5.00 m² K/W

Ensure wall top is level and that wall insulation is taken up level with wall top

AIR BARRIER - CONTINUITY
CHECKLIST (TICK ALL)

Seal all penetrations through air barrier using a flexible sealant

Fix ceiling first, and seal all gaps between ceiling and masonry wall with either plaster, adhesive or flexible sealant

GENERAL NOTES

BS5250 requires vapour control layer to be installed between deck and insulation

Turn up vapour control layer at edge of roof insulation, lap with roof waterproofing layer, and seal

ACCEPTABLE CONSTRUCTION DETAIL

Flat Roof - Eaves
<table>
<thead>
<tr>
<th>THERMAL PERFORMANCE CHECKLIST (TICK ALL)</th>
<th>AIR BARRIER - CONTINUITY CHECKLIST (TICK ALL)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Insulation upstand having a minimum R-value of 1.10 m² K/W (in heat flow direction perpendicular to wall surface) around parapet.</td>
<td>Seal all penetrations through air barrier using a flexible sealant</td>
</tr>
<tr>
<td>300 mm minimum between top of insulation upstand and bottom of horizontal roof insulation</td>
<td>Fix ceiling first, and seal all gaps between ceiling and masonry wall with either plaster, adhesive or flexible sealant</td>
</tr>
<tr>
<td>Ensure roof insulation tightly abuts inner face of parapet wall</td>
<td>Complying with checklist will help achieve design air permeability</td>
</tr>
</tbody>
</table>

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<tbody>
<tr>
<td>Thermal performance of junction can be improved significantly by using blockwork with a thermal conductivity of ≤2.0 W/mK in direction of heat flow in external wall at roof level or alternatively by extending insulation vertically up internal face of parapet wall to a height of 450 mm.</td>
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<td>BS5250 requires vapour control layer to be installed between deck and insulation</td>
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<td>Turn up vapour control layer at edge of roof insulation, lap with roof waterproofing layer, and seal</td>
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</tr>
<tr>
<td>Airtightness membrane and tapes</td>
<td></td>
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</table>
Seal all penetrations through air barrier using a flexible sealant.

Fill gap between frame / packer and blockwork with expanding foam or flexible sealant.

Apply flexible sealant to junctions of frame with external render and with internal air barrier.

Ensure wall insulation having a min. R-value of 0.6 m² K/W overlaps frame / packing piece.

Complying with checklist will help achieve design air permeability.
<table>
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<tr>
<th>THERMAL PERFORMANCE CHECKLIST (TICK ALL)</th>
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<tbody>
<tr>
<td>Ensure wall insulation having a minimum R-value of 0.60 m² K/W overlaps frame / packing piece</td>
<td>Fill gap between frame / packer and blockwork with expanding foam or flexible sealant</td>
</tr>
<tr>
<td></td>
<td>Seal all penetrations through air barrier using a flexible sealant</td>
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<tr>
<td></td>
<td>Apply flexible sealant to junctions of frame with external render and with internal air barrier</td>
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Complying with checklist will help achieve design air permeability

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ACCEPTABLE CONSTRUCTION DETAIL Ope - Jamb

DETAIL 2.21, 2011
(2) WALLS: EXTERNAL INSULATION
SOLID MASONARY / CAVITY BLOCK WALLS

**THERMAL PERFORMANCE CHECKLIST**
(TICK ALL)

- Install insulation to underside of sill

**AIR BARRIER - CONTINUITY CHECKLIST**
(TICK ALL)

- Fill gap between frame / packer and blockwork with expanding foam or flexible sealant
- Seal all penetrations through air barrier using a flexible sealant
- Apply flexible sealant to junctions of frame with external render and with internal air barrier

Complying with checklist will help achieve design air permeability

**GENERAL NOTES**

**OPTION (TICK ONE) AIR BARRIER - OPTIONS**

- Wet-finish plaster coat, or
- Masonry wall with scratch coat, and finished with plasterboard, or
- Plasterboard on dabs or battens, with continuous ribbon of adhesive tape around all openings, along top and bottom of wall, and at internal and external corners, or
- Airtightness membrane and tapes

**ACCEPTABLE CONSTRUCTION DETAIL**

**Ope - Sill**
## THERMAL PERFORMANCE

### Checklist (Tick All)

### GENERAL NOTES

### OPTION (Tick One)

### AIR BARRIER - OPTIONS

- Wet-finish plaster coat, or
- Masonry wall with scratch coat, and finished with plasterboard, or
- Plasterboard on dabs or battens, with continuous ribbon of adhesive tape around all openings, along top and bottom of wall, and at internal and external corners, or
- Airtightness membrane and tapes

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**ACCEPTABLE CONSTRUCTION DETAIL**

**Corner / Inverted Corner**

**DETAIL 2.23.1 + 2.23.2, 2011**

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**AIR BARRIER - CONTINUITY**

### Checklist (Tick All)

- Seal all penetrations through air barrier using a flexible sealant

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Complying with checklist will help achieve design air permeability.