INTRODUCTION

This section shows appropriate details for light steel frame construction. 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 junctions with a range of roof, ground floor and internal floor types, as well as at external wall opes. The details within this section are valid for a range of steel frame wall thicknesses.

With steel frame, some insulation must be placed outside the frame to provide a thermal break and avoid condensation. Warm frame construction is where all the insulation is outside the frame. Hybrid construction is where insulation is included both outside the steel structure and in between the steel components. At least 33% of the thermal resistance should be provided outside the steel. With hybrid construction, the system manufacturer should provide a condensation risk analysis (in accordance with BS 5250) to ensure there is no risk of interstitial condensation. An internal vapour control layer is generally required. The details show warm frame construction but apply equally to hybrid construction.

Insulation thicknesses have not been provided as these depend on the thermal properties of the materials chosen together with the proposed U-value. It is important to choose appropriate tightly fitting materials. Generally, a rigid insulation material, which acts as an insulated sheathing board, is required outside the frame.

Details show a masonry outer leaf for simplification. The details are also appropriate for a range of other claddings subject to suitable detailing. Further variables are insulation and sheathing types, and internal lining type and thickness. All external cladding systems should be proper materials as defined in part D.

These diagrams illustrate good practice for design and construction of interfaces only in respect to ensuring thermal performance and air barrier continuity. Other issues are not considered fully. The guidance must be implemented with due regard to all other Building Regulations requirements. All materials and workmanship to be installed to Technical Guidance Document D "Materials and workmanship”

Where these details are used for the Target U Values and constructions described in Table D5 of TGD L 2011 the psi values published in Table D5 may be used to calculate the actual Thermal Bridging heat loss for a dwelling for the key thermal bridging junctions in that dwelling.
1. \(\psi\) values for a Target U-value for the wall of 0.21 W/m\(^2\)K can be used for a range of U-values down to 0.18 W/m\(^2\)K 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/m\(^2\)K; Flat Roof = 0.16 to 0.2 W/m\(^2\)K; Ground Floor = 0.16 to 0.21 W/m\(^2\)K.

2. \(\psi\) values for a Target U-value for the wall of 0.15 W/m\(^2\)K can be used for a range of U-values from of 0.12 W/m\(^2\)K to 0.17 W/m\(^2\)K 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/m\(^2\)K; Flat Roof = 0.11 to 0.17 W/m\(^2\)K; 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 (\(\psi\)) 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 \(\psi\) 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 must tightly abut inner face of upstand or steel frame
- Ensure wall insulation is installed at least 225 mm below top of floor insulation
- If screed is used instead of timber floor covering, install edge insulation with min. R-value of 0.75 m² K/W through depth of screed
- Any upstand installed to floor edge to support steel framing must be formed with insulating blocks

## GENERAL NOTES

If sole plates are packed to level ensure that a continuous mortar grout is installed. Wall insulation installed below wall DPC must be fit for purpose as regards water absorption.

If compressible insulation is installed between studs in addition to rigid board insulation over, it should be tightly packed and be in direct contact with the rigid board. Take care to ensure compressible insulation is maintained above dewpoint temperature.

Some thermal bridging is inevitable in this location since robust bearing and holding down arrangements are normally required between frame and slab. Design should keep bridging within acceptable limits to reduce condensation risk.

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

## AIR BARRIER - CONTINUITY

**CHECKLIST (TICK ALL)**

- Ensure air barrier continuity between floor, and wall lining or sheathing layer. A flexible membrane installed below the steel channel may be used to provide this continuity
- Seal between wall and floor air barrier OR seal gap between skirting board and floor using a flexible sealant
- Seal all penetrations through air barrier using a flexible sealant or tape

Complying with checklist will help achieve design air permeability and may effect a reduced testing regime.

## OPTION (TICK ONE)

**AIR BARRIER - OPTIONS**

- Rigid insulation or board sheathing, or
- Internal lining, for example, plasterboard, or
- Airtightness membrane and tapes
**THERMAL PERFORMANCE**

- **CHECKLIST (TICK ALL)**
  - Floor insulation must tightly abut inner face of upstand or steel frame
  - Ensure wall insulation is installed at least 200 mm below top of floor.
  - If screed is used instead of timber floor covering, install edge insulation with min. R-value of 1.09 m² K/W through depth of screed

**GENERAL NOTES**

- If compressible insulation is installed between studs in addition to rigid board insulation over, it should be tightly packed and be in direct contact with the rigid board. Take care to ensure compressible insulation is maintained above dewpoint temperature.
- Some thermal bridging is inevitable in this location since robust bearing and holding down arrangements are normally required between frame and slab. Design should keep bridging within acceptable limits to reduce condensation risk.
- Detail applicable: Ground-bearing floor; raft foundation; in-situ suspended ground floor slab; pre-cast suspended ground floor; concrete and screed. Insulation below slab

**AIR BARRIER - CONTINUITY**

- **CHECKLIST (TICK ALL)**
  - Ensure air barrier continuity between floor, and wall lining or sheathing layer. A flexible membrane installed below the steel channel may be used to provide this continuity.
  - Seal between wall and floor air barrier OR seal gap between skirting board and floor using a flexible sealant.
  - Seal all penetrations through air barrier using a flexible sealant or tape.

Complying with checklist will help achieve design air permeability and may affect a reduced testing regime.

**OPTION (TICK ONE)**

**AIR BARRIER - OPTIONS**

- Rigid insulation or board sheathing, or
- Internal lining, for example, plasterboard, or
- Airtightness membrane and tapes
**THERMAL PERFORMANCE**

**CHECKLIST (TICK ALL)**

Continue wall insulation across floor abutment zone

---

**AIR BARRIER - CONTINUITY**

**CHECKLIST (TICK ALL)**

If using wall lining to form air barrier, ensure air barrier continuity between upper and lower wall linings. A flexible membrane installed around floor edge may be used to provide this continuity. (Dotted blue line depicts air barrier continuity through floor zone, and can be notional)

Seal all penetrations through air barrier using a flexible sealant or tape

---

**GENERAL NOTES**

If compressible insulation is installed between studs in addition to rigid board insulation over, it should be tightly packed and be in direct contact with the rigid board. Take care to ensure compressible insulation is maintained above dewpoint temperature

---

**OPTION (TICK ONE)**

**AIR BARRIER - OPTIONS**

- Rigid insulation or board sheathing, or
- Internal lining, for example, plasterboard, or
- Airtightness membrane and tapes

---

**ACCEPTABLE CONSTRUCTION DETAIL**

**Lightweight Intermediate Floor**

DETAIL 5.03, 2011
Rigid insulation or board sheathing, or internal lining, for example, plasterboard, or airtightness membrane and tapes can be used. If compressible insulation is installed between studs in addition to rigid board insulation, it should be tightly packed and in direct contact with the rigid board. Care must be taken to ensure compressible insulation is maintained above dewpoint temperature.

Ensure continuity of insulation between the separating wall and the external wall construction.

Complying with the checklist will help achieve design air permeability and may effect a reduced testing regime.

If compressible insulation is installed between studs in addition to rigid board insulation, it should be tightly packed and be in direct contact with the rigid board. Take care to ensure compressible insulation is maintained above dewpoint temperature.

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

Read this detail in conjunction with detail 5.05, Separating Wall (section).
### (5) STEEL FRAME

**Separating Wall (section)**

#### THERMAL PERFORMANCE

<table>
<thead>
<tr>
<th>CHECKLIST (TICK ALL)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fire stopping to be provided where necessary using suitable insulant as per certification details.</td>
</tr>
</tbody>
</table>

- Ensure full depth of insulation between, over (or below) joists extends through stud framework
- Pack compressible insulation between last truss / joist and separating wall

#### GENERAL NOTES

- If compressible insulation is installed between studs in addition to rigid board insulation over, it should be tightly packed and be in direct contact with the rigid board. Take care to ensure compressible insulation is maintained above dewpoint temperature
- See TGD-B for guidance on fire safety and TGD-E for guidance on sound insulation
- Read this detail in conjunction with detail 5.04, Separating Wall (plan)

#### AIR BARRIER - CONTINUITY

<table>
<thead>
<tr>
<th>CHECKLIST (TICK ALL)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Seal all penetrations through air barrier using a flexible sealant or tape</td>
</tr>
</tbody>
</table>
- Seal between wall and ceiling linings

**Complying with checklist will help achieve design air permeability and may effect a reduced testing regime.**

#### AIR BARRIER - OPTIONS

<table>
<thead>
<tr>
<th>OPTION (TICK ONE)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Internal lining, for example, plasterboard</td>
</tr>
</tbody>
</table>
- Airtightness membrane and tapes

---

**ACCEPTABLE CONSTRUCTION DETAIL**

**Separating Wall (section)**

**DETAIL 5.05, 2011**
Complying with checklist qualifies builder to claim value in Table 3 of IP 1/06 and Table K1 of DEAP 2006!

Rigid insulation or board sheathing, or
Internal lining, for example, plasterboard, or
Airtightness membrane and tapes

DETAIL 5.06, 2011

Continue wall insulation across abutment zone

Seal all penetrations through air barrier using a flexible sealant
If using wall lining to form air barrier, ensure air barrier continuity across partition wall. Tape seal over any open holes in the end vertical partition channel. (Dotted blue line depicts air barrier continuity through floor zone, and can be notional)

GENERAL NOTES
If compressible insulation is installed between studs in addition to rigid board insulation over, it should be tightly packed and be in direct contact with the rigid board. Take care to ensure compressible insulation is maintained above dewpoint temperature

Read this detail in conjunction with detail G-04, Metal Stud Partition Wall (section)

ACCEPTABLE CONSTRUCTION DETAIL

THERMAL PERFORMANCE
CHECKLIST
(TICK ALL)

AIR BARRIER - CONTINUITY
CHECKLIST
(TICK ALL)

OPTION
(TICK ONE)

AIR BARRIER - OPTIONS

Rigid insulation or board sheathing, or
Internal lining, for example, plasterboard, or
Airtightness membrane and tapes

Complying with checklist will help achieve design air permeability and may effect a reduced testing regime.
**THERMAL PERFORMANCE CHECKLIST (TICK ALL)**

- Ensure continuity of insulation throughout junction

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

- Ensure gap between wall plate and breathable underlay is completely filled with insulation having a min. R-value across the insulation thickness of 4.50 m² K/W

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

- Seal all penetrations through air barrier using a flexible sealant or tape

- Ensure air barrier continuity between ceiling, and wall lining or sheathing layer. A flexible membrane installed below wall plate may be used to provide this continuity

**GENERAL NOTES**

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

Use vapour permeable roof underlay in strict accordance with third party certification

Eaves insulation must not hinder free water drainage below tiling battens

Install suitable cavity barrier to manufacturers specification

If compressible insulation is installed between studs in addition to rigid board insulation over, it should be tightly packed and be in direct contact with the rigid board. Take care to ensure compressible insulation is maintained above dewpoint temperature

Read this detail in conjunction with detail 5-13, Gable - Attic Floor Level

**ACCEPTABLE CONSTRUCTION DETAIL**

Eaves - Unventilated Attic

**AIR BARRIER - OPTIONS**

- Rigid insulation or board sheathing, or

- Internal lining, for example, plasterboard, or

- Airtightness membrane and tapes

Complying with checklist will help achieve design air permeability and may affect a reduced testing regime.
**GENERAL NOTES**

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

Use vapour permeable roof underlay in strict accordance with third party certification.

Eaves insulation must not hinder free water drainage below tiling battens.

Install suitable cavity barrier to manufacturers specification.

If compressible insulation is installed between studs in addition to rigid board insulation over, it should be tightly packed and be in direct contact with the rigid board. Take care to ensure compressible insulation is maintained above dewpoint temperature.

Read this detail in conjunction with detail 5-13, Gable - Attic Floor Level.

---

**THERMAL PERFORMANCE CHECKLIST (TICK ALL)**

- 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 4.50 m² K/W

---

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

- Seal all penetrations through air barrier using a flexible sealant or tape
- Ensure air barrier continuity between ceiling, and wall lining or sheathing layer. A flexible membrane installed below wall plate may be used to provide this continuity

---

**OPTION (TICK ONE)**

**AIR BARRIER - OPTIONS**

- Rigid insulation or board sheathing, or
- Internal lining, for example, plasterboard, or
- Airtightness membrane and tapes
Eaves - Insulation between and under rafters - Unventilated Rafter Void - Dormer

(5) STEEL FRAME

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 guard is completely filled with insulation having a min. R-value across the insulation thickness of 4.58 m² K/W

AIR BARRIER - CONTINUITY

CHECKLIST (TICK ALL)

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 or tape

Ensure air barrier continuity between ceiling, and wall lining or sheathing layer. A flexible membrane installed below wall plate may be used to provide this continuity

Complying with checklist will help achieve design air permeability and may effect a reduced testing regime.

GENERAL NOTES

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

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

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

Eaves insulation must not hinder free water drainage below tiling batten

Install suitable cavity barrier to manufacturer’s specification

If compressible insulation is installed between studs in addition to rigid board insulation over, it should be tightly packed and be in direct contact with the rigid board. Take care to ensure compressible insulation is maintained above dewpoint temperature.

Read this detail in conjunction with details 5-13, Gable - Arctic Floor Level and 5-15, Gable - Insulation between and under rafters - Unventilated Rafter Void

ACCEPTABLE CONSTRUCTION DETAIL

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

DETAIL 5.09.1 + 5.09.2, 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 guard is completely filled with insulation having a min. R-value across the insulation thickness of 4.58 m² K/W

**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 eaves ventilator must not prevent free water drainage below eave battens.

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

Install suitable cavity barrier to manufacturers specification.

If compressible insulation is installed between studs in addition to rigid board insulation over, it should be tightly packed and be in direct contact with the rigid board. Take care to ensure compressible insulation is maintained above dewpoint temperature.

Read this detail in conjunction with details S-13, Gable - Attic Floor Level and S-14, Gable - Insulation between and under rafters - Ventilated Rafter Void

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

- 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 or tape
- Ensure air barrier continuity between ceiling, and wall lining or sheathing layer. A flexible membrane installed below wall plate may be used to provide this continuity.

**OPTION (TICK ONE)**

- Rigid insulation or board sheathing, or
- Internal lining, for example, plasterboard, or
- Airtightness membrane and tapes

Complying with checklist will help achieve design air permeability and may effect a reduced testing regime.

---

**ACCEPTABLE CONSTRUCTION DETAIL**

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

DETAIL 5.10.1 + 5.10.2, 2011
THERMAL PERFORMANCE
CHECKLIST
(TICK ALL)

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

Ensure full depth of insulation between and under rafters abuts eaves insulation

Ensure continuity of insulation throughout junction

Ensure gap between wall plate and proprietary eaves guard is completely filled with insulation having a min. R-value across the insulation thickness of 4.70 m² K/W

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

Install suitable cavity barrier to manufacturers specification

If compressible insulation is installed between studs in addition to rigid board insulation over, it should be tightly packed and be in direct contact with the rigid board. Take care to ensure compressible insulation is maintained above dewpoint temperature

Read this detail in conjunction with details S-13, Gable - Attic Floor Level and S-14, Gable - Insulation between and under rafters - Ventilated Rafter Void

ACCEPtable CONSTRUCTION DETAIL

Eaves - Insulation between and under rafters - Ventilated Rafter Void - Pitched ceiling

DETAIL 5.11.1 + 5.11.2, 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 rafters abuts eaves insulation

- Ensure gap between wall plate and over rafter insulation is completely filled with insulation having a min. R-value across the insulation thickness of 4.70 m² K/W

### Air Barrier - Continuity Checklist (Tick All)

- 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 or tape

- Ensure air barrier continuity between ceiling, and wall lining or sheathing layer. A flexible membrane installed below wall plate may be used to provide this continuity

### 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
- Install suitable cavity barrier to manufacturers specification
- If compressible insulation is installed between studs in addition to rigid board insulation over, it should be tightly packed and be in direct contact with the rigid board. Take care to ensure compressible insulation is maintained above dewpoint temperature
- Read in conjunction with detail 5-16, Gable - Insulation between and over rafters - Unventilated Rafter Void

### Acceptable Construction Detail

- Eaves - Insulation between and over rafters
- Unventilated Rafter Void - Pitched ceiling

**Option (Tick One)**

**Air Barrier - Options**

- Rigid insulation or board sheathing, or

- Internal lining, for example, plasterboard, or

- Airtightness membrane and tapes
Gable - Ventilated and Unventilated Attic

**THERMAL PERFORMANCE**

**CHECKLIST (TICK ALL)**

- Ensure full depth of insulation between and over joists extends to inner face of rigid wall sheathing / insulation
- Pack compressible insulation between last truss / joist, and gable wall insulation
- Thermal break with R-value of 0.20 m²K/W

**AIR BARRIER - CONTINUITY**

**CHECKLIST (TICK ALL)**

- Seal all penetrations through air barrier using a flexible sealant or tape
- Ensure air barrier continuity between ceiling, and wall lining or sheathing layer. A flexible membrane installed below wall plate may be used to provide this continuity

**GENERAL NOTES**

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

If compressible insulation is installed between studs in addition to rigid board insulation over, it should be tightly packed and be in direct contact with the rigid board. Take care to ensure compressible insulation is maintained above dewpoint temperature.

Read in conjunction with details 5-07, Eaves - Ventilated Attic, or 5-08, Eaves - Unventilated Attic, as appropriate

**OPTION (TICK ONE)**

**AIR BARRIER - OPTIONS**

- Rigid insulation or board sheathing, or
- Internal lining, for example, plasterboard, or
- Airtightness membrane and tapes
Ensure full depth of insulation between and under rafters extends to wall. Pack gap between rafter and wall with compressible insulation.

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. Min. R-value of 4.35 m²K/W.

Ensure insulation continuity throughout junction.

Ensure wall insulation is taken up level with top of wall.

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

Seal all penetrations through air barrier using a flexible sealant or tape.

Ensure air barrier continuity between ceiling, and wall lining or sheathing layer. A flexible membrane installed below wall plate may be used to provide this continuity.

Complying with checklist will help achieve design air permeability and may effect a reduced testing regime.

If required by BS5250, use vapour control plasterboard or separate vapour control layer behind plasterboard. Vapour permeable roof underlay to be used in strict accordance with approved third party certification. Use of under rafter insulation is considered best practice, as it eliminates the cold bridge caused by the rafter.

Install suitable cavity barrier to manufacturers specification. If compressible insulation is installed between studs in addition to rigid board insulation over, it should be tightly packed and be in direct contact with rigid board. Take care to ensure compressible insulation is maintained above dewpoint temperature. Read in conjunction with details 5-10, Eaves - Insulation between and under rafters - Unventilated Rafter Void.

Rigid insulation or board sheathing, or

Internal lining, for example, plasterboard, or

Airtightness membrane and tapes.
(5) STEEL FRAME

**THERMAL PERFORMANCE CHECKLIST** (TICK ALL)

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

- 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. Min. R-value of 4.35 m²K/W.

- Ensure insulation continuity throughout junction.

- Ensure wall insulation is taken up level with top of wall.

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

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

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

- Ensure air barrier continuity between ceiling, and wall lining or sheathing layer. A flexible membrane installed below wall plate may be used to provide this continuity.

**GENERAL NOTES**

Ventilate roof in accordance with BS 5250. 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.

Install suitable cavity barrier to manufacturers specification.

If compressible insulation is installed between studs in addition to rigid board insulation over, it should be tightly packed and be in direct contact with rigid board. Take care to ensure compressible insulation is maintained above dewpoint temperature.

Read in conjunction with details 5-09, Eaves - Insulation between and under rafters - Ventilated Rafter Void.

**OPTION (TICK ONE)**

**AIR BARRIER - OPTIONS**

- Rigid insulation or board sheathing, or

- Internal lining, for example, plasterboard, or

- Airtightness membrane and tapes

**ACCEPTABLE CONSTRUCTION DETAIL**

Gable - Insulation between and under rafters - Ventilated Rafter Void

DETAIL 5.15, 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. Min. R-value of 2.17 m² K/W
- Ensure wall insulation is taken up level with top of wall
- Ensure insulation continuity throughout junction
- 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 or tape
- Ensure air barrier continuity between ceiling, and wall lining or sheathing layer. A flexible membrane installed below wall plate may be used to provide this continuity

---

**GENERAL NOTES**

If required by BS5250, use vapour control plasterboard or separate vapour control layer behind plasterboard.
Vapour permeable roof underlay to be used in strict accordance with approved third party certification
Use of over rafter insulation is considered best practice, as it eliminates the cold bridge caused by the rafter
Install suitable cavity barrier to manufacturers specification
If compressible insulation is installed between studs in addition to rigid board insulation over, it should be tightly packed and be in direct contact with the rigid board. Take care to ensure compressible insulation is maintained above dewpoint temperature
Read in conjunction with details 5-12, Eaves - Insulation between and over rafters - Unventilated Rafter Void

---

**ACCEPTABLE CONSTRUCTION DETAIL**

**Gable - Insulation between and over rafters - Unventilated Rafter Void**

---

**OPTION (TICK ONE)**

- Rigid insulation or board sheathing, or
- Internal lining, for example, plasterboard, or
- Airtightness membrane and tapes
THERMAL PERFORMANCE

CHECKLIST (TICK ALL)

- Ensure full depth of over roof insulation over joists extends to roof edge
- Fit insulation over top of wall within gable ladder. Fully fill void, ensuring insulation is installed tightly between joists, and is in contact with deck. Min. R-value of 5.00 m² K/W
- Ensure wall insulation is taken up level with top of wall

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

If compressible insulation is installed between studs in addition to rigid board insulation over, it should be tightly packed and be in direct contact with the rigid board. Take care to ensure compressible insulation is maintained above dewpoint temperature

AIR BARRIER - CONTINUITY

CHECKLIST (TICK ALL)

- Seal all penetrations through air barrier using a flexible sealant or tape
- Ensure air barrier continuity between ceiling, and wall lining or sheathing layer. A flexible membrane installed below wall plate may be used to provide this continuity

OPTIONS (TICK ONE)

AIR BARRIER - OPTIONS

- Rigid insulation or board sheathing, or
- Internal lining, for example, plasterboard, or
- Airtightness membrane and tapes
THERMAL PERFORMANCE CHECKLIST (TICK ALL)

- Insulation upstand having a minimum R-value of 1.14 m² K/W (in heat flow direction perpendicular to wall surface) around parapet
- 300 mm minimum between top of insulation upstand and bottom of horizontal roof insulation
- Install compressible insulation between wall studs over level of deck
- Ensure roof insulation tightly abuts inner face of parapet wall

AIR BARRIER - CONTINUITY CHECKLIST (TICK ALL)

- Seal all penetrations through air barrier using a flexible sealant or tape
- Ensure air barrier continuity between ceiling, and wall lining or sheathing layer. A flexible membrane installed below wall plate may be used to provide this continuity

GENERAL NOTES

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

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

If compressible insulation is installed between studs in addition to rigid board insulation over, it should be tightly packed and be in direct contact with the rigid board. Take care to ensure compressible insulation is maintained above dewpoint temperature

ACCEPTABLE CONSTRUCTION DETAIL

Flat Roof - Parapet
**THERMAL PERFORMANCE CHECKLIST (TICK ALL)**

- Finish insulation tight to closer
- Install proprietary cavity closer with thermal resistance path through clover of 3.94 m\(^2\) K/W or better (Manufacturers' certified data)

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

- Seal all penetrations through air barrier using a flexible sealant or tape
- Ensure air barrier continuity between frame, and wall lining or sheathing layer. A flexible membrane may be used to provide this continuity
- Apply flexible sealant to interfaces between wall air barrier elements, and frame members
- Apply external flexible seal around frame

*Complying with checklist will help achieve design air permeability and may effect a reduced testing regime.*

**GENERAL NOTES**

If compressible insulation is installed between studs in addition to rigid board insulation over, it should be tightly packed and be in direct contact with the rigid board and cavity closer. Take care to ensure compressible insulation is maintained above dewpoint temperature

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

- Rigid insulation or board sheathing, or
- Internal lining, for example, plasterboard, or
- Airtightness membrane and tapes
(5) STEEL FRAME

THERMAL PERFORMANCE

CHECKLIST (TICK ALL)

Install proprietary cavity closer with thermal resistance path through closer of 3.94 m² K/W or better (Manufacturers’ certified data)

Finish insulation tight to closer

AIR BARRIER - CONTINUITY

CHECKLIST (TICK ALL)

☐ Seal all penetrations through air barrier using a flexible sealant or tape

☐ Apply flexible sealant to interfaces between wall air barrier elements, and frame members

☐ Ensure air barrier continuity between frame, and wall lining or sheathing layer. A flexible membrane may be used to provide this continuity

☐ Apply external flexible seal around frame

Complying with checklist will help achieve design air permeability and may effect a reduced testing regime.

GENERAL NOTES

If compressible insulation is installed between studs in addition to rigid board insulation over, it should be tightly packed and be in direct contact with the rigid board and cavity closer. Take care to ensure compressible insulation is maintained above dewpoint temperature

OPTION (TICK ONE)

AIR BARRIER - OPTIONS

☐ Rigid insulation or board sheathing, or

☐ Internal lining, for example, plasterboard, or

☐ Airtightness membrane and tapes

ACCEPTABLE CONSTRUCTION DETAIL

Ope - Jamb

DETAIL 5.20, 2011
**THERMAL PERFORMANCE CHECKLIST (TICK ALL)**

- Install proprietary cavity closer with thermal resistance path through closer of 3.13 m² K/W or better (Manufacturers' certified data)

- Finish insulation tight to closer

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

- Seal all penetrations through air barrier using a flexible sealant or tape

- Apply flexible sealant to interfaces between wall air barrier elements, and frame members

- Ensure air barrier continuity between frame, and wall lining or sheathing layer. A flexible membrane may be used to provide this continuity

- Apply external flexible seal around frame / bed frame in flexible seal

*Complying with checklist will help achieve design air permeability and may effect a reduced testing regime.*

**GENERAL NOTES**

If compressible insulation is installed between studs in addition to rigid board insulation over, it should be tightly packed and be in direct contact with the rigid board and cavity closer. Take care to ensure compressible insulation is maintained above dewpoint temperature

**OPTION (TICK ONE)**

**AIR BARRIER - OPTIONS**

- Rigid insulation or board sheathing, or

- Internal lining, for example, plasterboard, or

- Airtightness membrane and tapes
## General Notes

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

## Air Barrier - Options

- Internal lining, for example, plaster, or
- Airtightness tapes
Steel Partition Wall through ground floor

THERMAL PERFORMANCE
CHECKLIST (TICK ALL)

AIR BARRIER - CONTINUITY
CHECKLIST (TICK ALL)

Complying with checklist will help achieve design air permeability

GENERAL NOTES

OPTION (TICK ONE) AIR BARRIER - OPTIONS

☐ Internal lining, for example, plaster, or

☐ Airtightness tapes

ACCEPTABLE CONSTRUCTION DETAIL Steel Partition Wall through ground floor DETAIL 5.22.2, 2011
**GENERAL NOTES**

If compressible insulation is installed between studs in addition to rigid board insulation over, it should be tightly packed and be in direct contact with the rigid board. Take care to ensure compressible insulation is maintained above dewpoint temperature.

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

- Rigid insulation or board sheathing, or
- Internal lining, for example, plasterboard, or
- Airtightness membrane and tapes

**Seal all penetrations through air barrier using a flexible sealant**

*Complying with checklist will help achieve design air permeability and may affect a reduced testing regime.*