Engineered Timber Systems





## Kingspan TEK Building System

STANDARD DETAILS FOR 142 MM STRUCTURAL INSULATED PANELS







### Contents

### Wall Details

- W1 Typical wall section.
- W2a Sectional elevation through soleplate fixing detail. Ground bearing slab.
- W2b Typical ground bearing floor slab with ventilated cladding.
- W2c Typical ground bearing floor slab with 140 mm block-work wall.
- W3a Sectional elevation through soleplate fixing detail Suspended reinforced concrete slab.
- W3b Sectional elevation through wall junction with ground floor slab.
- W4a Sectional elevation through beam and block floor support.
- W4b Sectional elevation through beam and block floor support.
- W5 Plan showing typical wall connection detail. Corner & T-junction.
- W6 Typical window detail brickwork external leaf.
- W7 Typical section at window cill brickwork external leaf.
- W8 Typical section at window head brickwork external leaf.
- W9 Typical window detail polymer rendered cladding board with ventilated cladding cavity.
- W10 Standard external finishes.
- W11 Plan view of internal Kingspan **TEK**® Building System walls.
- W12 Typical separating wall section incorporating room in roof.
- W12a Section through typical separating wall assemblies.
- W12b Section through typical separating wall & floor assemblies incorporating trussed rafter roof.
- W13 Plan showing separating wall detail with brickwork external leaf incorporating flanking detail.
- W14 Sectional elevation of inlet / outlet e.g. for MVHR system
- W15 Wall hung boilder installation.
- W16 Gas + Electricity meter box installation.
- W17 External brick tie details for buildings not exceeding 4-storeys high.
- W18a Kingspan TEK® Building System single separating wall junction with external wall (plan view).
- W18b Kingspan **TEK®** Building System single separating wall junction stepped external wall detail.
- W18c Lightweight frame internal wall connection onto Kingspan TEK® Building System single separating wall (plan view).
- W18d Kingspan TEK® Building System single separating wall junction ground floor slab detail.
- W18e Kingspan TEK® Building System single separating wall junction stepped ground floor slab detail.
- W18f Kingspan TEK® Building System single separating wall junction separating floor detail.
- W18g Kingspan TEK® Building System single separating wall junction internal floor detail.
- W18h Kingspan TEK® Building System single separating wall junction room in roof detail.
- W18j Kingspan TEK® Building System single separating wall junction trussed rafter roof detail.
- W19a Kingspan **TEK®** Building System external (flanking) wall junction with timber separating walls to Robust Details E-WT-1 and E-WT-2.
- W19b Kingspan **TEK®** Building System staggered external (flanking) wall junction with timber separating walls to Robust Details E-WT-1 and E-WT-2.

### Floor Details

- F1 Section through typical separating wall & floor assemblies incorporating room in roof.
- F2 Section through typical separating wall & floor assemblies.
- F3 Separating floor detail. Platform frame. Non-Robust detail (pct) required.
- F4 Typical connection detail for engineered I-joist floor system.
- F5 Internal load bearing floor detail.
- F6 Alternative I-joist / wall panel connection detail fixed to rim board.

### **Roof Details**

- R1 Typical eaves detail vertical section with Kingspan TEK® Building System pitched roof panel.
- R2 Internal roof support details at 40° pitch.
- R3 Typical roof panel overlaid ridge detail with & without support.
- R4 Typical ridge connection details.
- R5 Room in roof dormer perspective & section detail.
- R6 Typical roof light detail.
- R7 Typical valley detail showing roof panels connected to valley rafter.
- R8 Typical hip detail showing roof panels connected to hip rafter.
- R9 Roof to roof change in level detail.
- R10 Typical eaves detail vertical section with truss rafter pitched roof.
- R11 Kingspan TEK® Building System gable junction truss rafter roof with insulation at ceiling level.
- R12 Kingspan TEK® Building System gable junction Kingspan TEK® Building System roof panel.
- R13 Kingspan TEK® Building System external wall junction with warm deck flat roof timber frame parapet wall.

### **Construction Details**

- C1 Typical panel joints for Kingspan **TEK®** Building System wall panels.
- C2 Timber post panel joint.
- C3 OSB3 cassette panel joint.
- C4 Typical wall elevation with window & door openings.
- C5 Typical gable elevation with ridge beam pocket detail.

### Miscellaneous Details

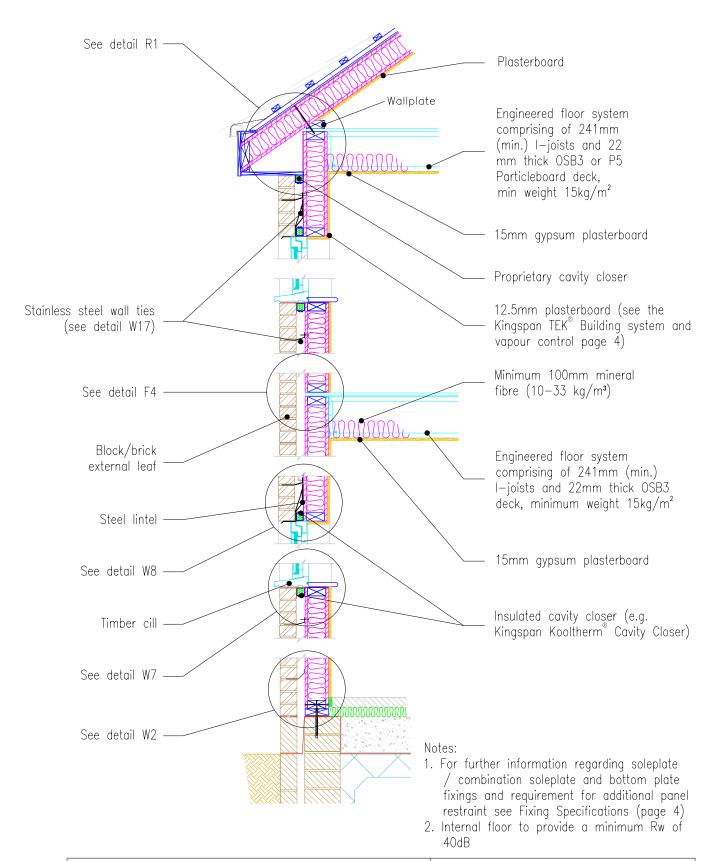
- M1 Standard fixings sparrennagel, smooth ringshank nails & SIP screw.
- M2 Standard fixings hangers & brackets.
- M3 Wall mounted services detail electrical.
- M4 External fireplace recess & chimney.
- M5 Alternate external fireplace recess & chimney.

NB These details offer general guidance and are not exhaustive, they have been compiled based on best practice and current information at the time of going to press. Please confirm these details are the current edition at the point of need by contacting the Kingspan TEK® Technical Service Department (see rear cover). The use of these details and their application remain the responsibility of the principal designer who should at all times verify their suitability, accuracy and likely performance with respect to their intended usage. Accordingly, Kingspan Insulation Ltd accepts no liability for any errors, omissions or claims arising from their use. For further advice on the application of these details, please contact the Kingspan TEK® Technical Service Department (see rear cover).

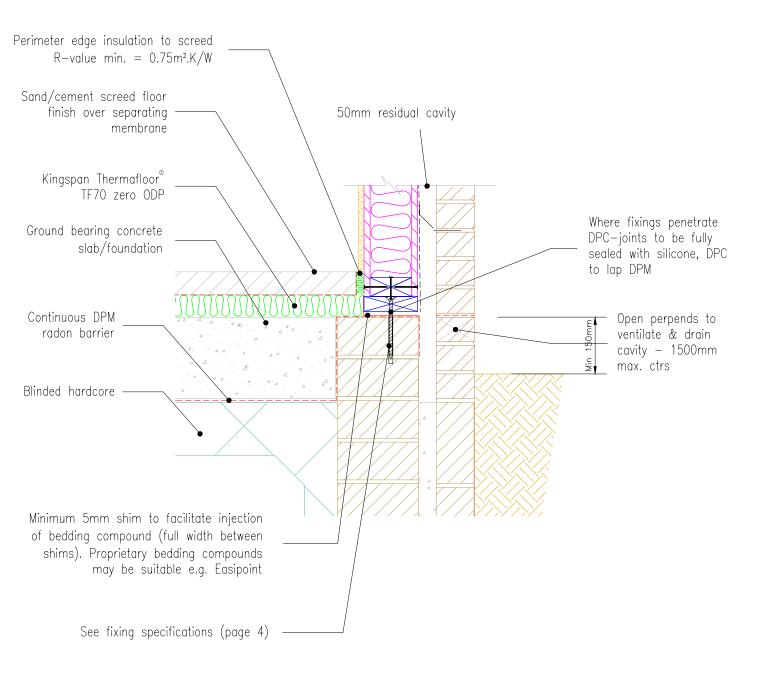
### Fixing Specifications

Application	Fastener Type	Spacing
Fixing soleplate or combined soleplate and bottomplate	Specification should be in accordance with project structural engineers' recommendations based upon geography and project foundation substructure	As per project structural engineers' recommendations
Panel straps to substructure / foundations	Specifications should be in accordance with project structural engineers' recommendations based upon geography and project foundation substructure	As per project structural engineers' recommendations
Fixing 50 mm x 110 mm bottomplates to soleplates	3.1 mm x 90 mm galvanized ring-shank nails	200 mm centres in two staggered rows
Fixing 15 mm x 100 mm OSB3 splines into Kingspan <b>TEK®</b> Building System panels	2.8 mm x 63 mm galvanized ring-shank nails	100 mm centres both sides of the panel
Fixing 50 mm x 110 mm bottomplates, headplates, end timbers, edge timbers into Kingspan <b>TEK®</b> Building System panels	2.8 mm x 63 mm galvanized ring-shank nails	50 mm centres both sides of the panel
Fixing 100 mm x 110 mm timber posts into Kingspan <b>TEK®</b> Building System panels	2.8 mm x 63 mm galvanized ring-shank nails	50 mm centres both sides of the panel
Fixing 110 mm x 150 mm bevelled headplate to <i>Kingspan</i> <b>TEK®</b> Building System panels	2.8 mm x 63 mm galvanized ring-shank nails	50 mm centres both sides of the panel
Fixing Kingspan <b>TEK®</b> Building System wall panels at corner joints	6.0 mm x 210 mm sparrennagel or 4.8 mm x 203 mm FastenMaster Headlok	Typically 300 mm centres for sparrennagel (4.0 mm dia. pre-drilled holes required.) Typically 350 mm centres for FastenMaster Headlok screws
Fixing Kingspan <b>TEK®</b> Building System roof sections at wall/floor junctions, ridge beams, intermediate purlins and gable walls	6.0 mm x 210 mm sparrennagel or 4.8 mm x 203 mm FastenMaster Headlok	Typically 300 mm centres for sparrennagel (4.0 mm dia. pre-drilled holes required.) Typically 350 mm centres for FastenMaster Headlok screws
Fixing joist hangers to headplate or laminated beams (fixings may vary depending on specification of joist hanger – please refer to manufacturers' instructions floor system)	3.75 mm x 32 mm square twist shank nails or Simpson N10 nails	Into side and top of headplate in locations marked out
Fixing I-beams / joist to joist hanger (fasteners may vary depending on specification of joist hanger – please refer to manufacturers' instructions floor system)	3.75 mm x 32 mm square twist shank nails or Simpson N10 nails	In pre-drilled holes for bottom flange
Fixing OSB3 / P5 floor decking to joists / headplate or header joist	2.8 mm x 63 mm galvanized ring-shank nails	Maximum 200 mm centres
Fixing rim board to headplate	Skew nail 3.75 mm x 75 mm round wire nails	150 mm
Fixing OSB3 / P5 floor decking to joists / rimboard	3.35 mm x 65 mm round wire nails	200 mm
Fixing brickwork cavity wall ties to Kingspan <b>TEK</b> ® Building System wall panels	BTS 50 SCR tie / screw kits (Simpson Strong-Tie BTS 50 & ABC Spax 30 mm x 4.0 mm stainless steel flange head)	Varies with the geographical location of the building. Follow wall tie manufacturer's recommendations.
Fixing treated timber counter battens to Kingspan <b>TEK®</b> Building System wall / roof panels for ventilation	ABC Spax 5 mm x 60 mm or EJOT M5 70 mm stainless steel screws or equivalent (to penetrate through 15 mm OSB/3 face)	Typically 300 mm centres. For further guidance follow project structural engineers' recommendations

NB. Contact Kingspan TEK® Technical Services Department for further information. Heads of nail fixings should be flush with the surface of the OSB3 / P5 facing.



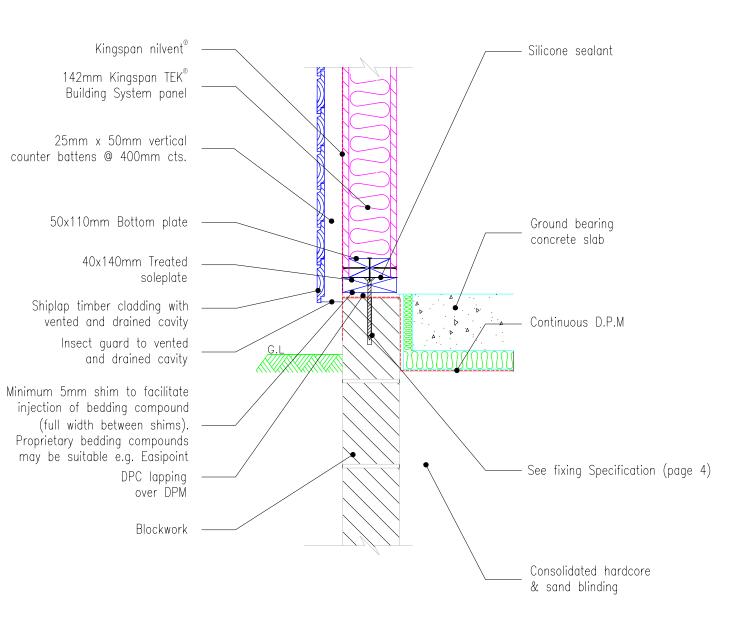




- 1. For further information regarding soleplate / combination soleplate and bottom plate fixings and the requirement for additional panel restaint see Fixing Specifications (page 4)
- 2. Slab should be levelled and shimmed along line of walls to create a level platform for wall construction

Shim Thickness	Shim Colour	
2mm	Purple	
3mm	Green	
4mm	Yellow	
5mm	Blue	
6mm	Black	





1. For further information regarding soleplate / combination soleplate and bottom plate fixings and the requirement for additional panel restaint see Fixing Specifications (page 4)

Shim Thickness	Shim Colour
2mm	Purple
3mm	Green
4mm	Yellow
5mm	Blue
6mm	Black



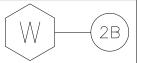
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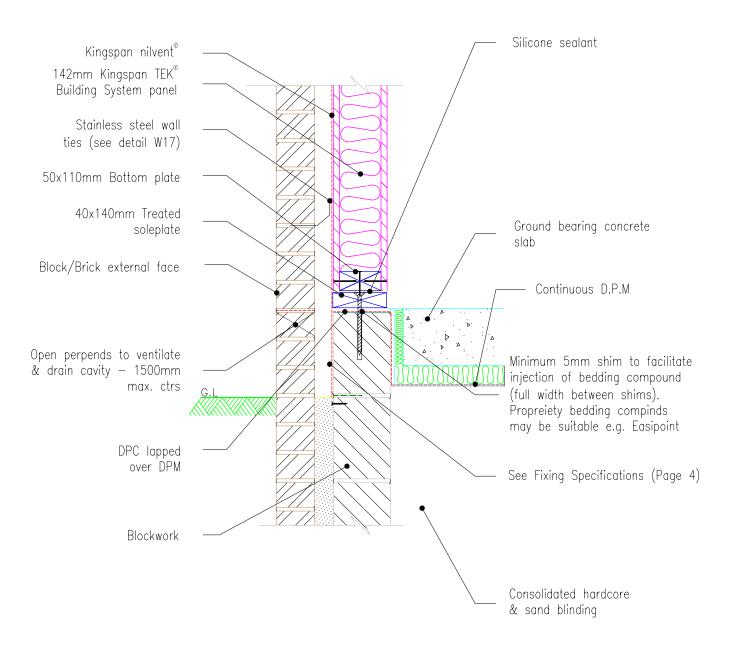
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# Typical ground bearing floor slab detail with ventilated cladding

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	J.L.	1:10





 For further information regarding soleplate / combination soleplate and bottom plate fixings and the requirement for additional panel restaint see Fixing Specifications (page 4)

Shim Thickness	Shim Colour
2mm	Purple
3mm	Green
4mm	Yellow
5mm	Blue
6mm	Black



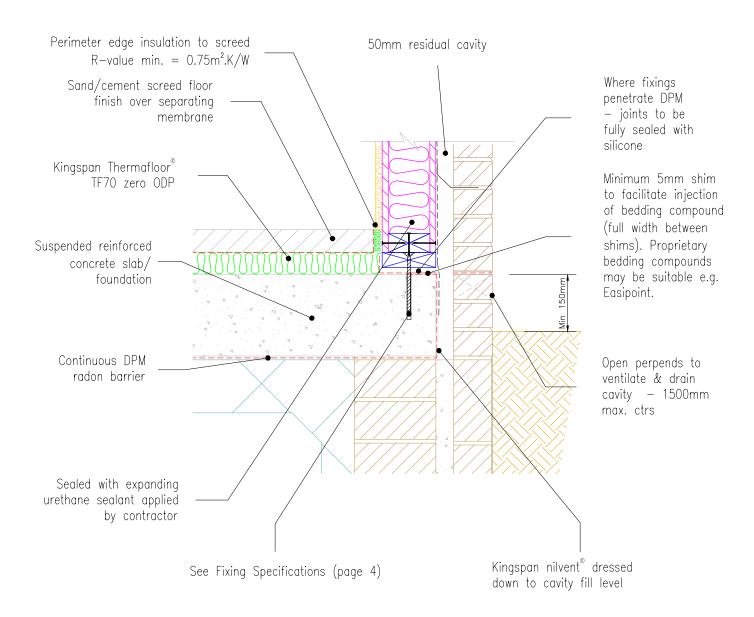
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Typical ground bearing floor
slab detail with 140mm
blockwork wall

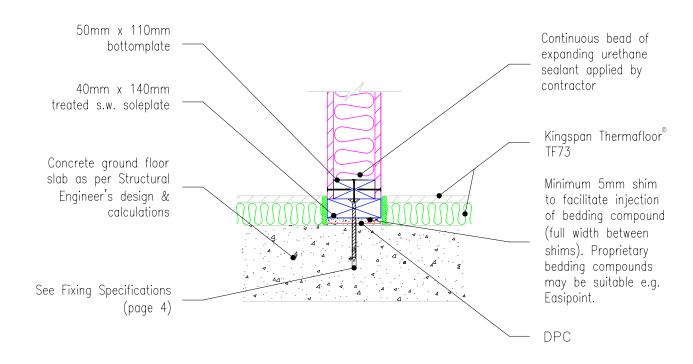
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2/7/10			$\bigcap$
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J.L.	1:10		



- For further information regarding soleplate / combination soleplate and bottom plate fixings and the requirement for additional panel restaint see Fixing Specifications (page 4)
- 2. Slab should be levelled and shimmed along line of walls to create level platform for wall construction.

Shim Thickness	Shim Colour
2mm	Purple
3mm	Green
4mm	Yellow
5mm	Blue
6mm	Black





- For further information regarding soleplate / combination soleplate and bottom plate fixings and the requirement for additional panel restaint see Fixing Specifications (page 4)
- 2. Slab should be levelled and shimmed along line of walls to create level platform for wall construction.

Shim Thickness	Shim Colour	
2mm	Purple	
3mm Green		
4mm	Yellow	
5mm	Blue	
6mm	Black	



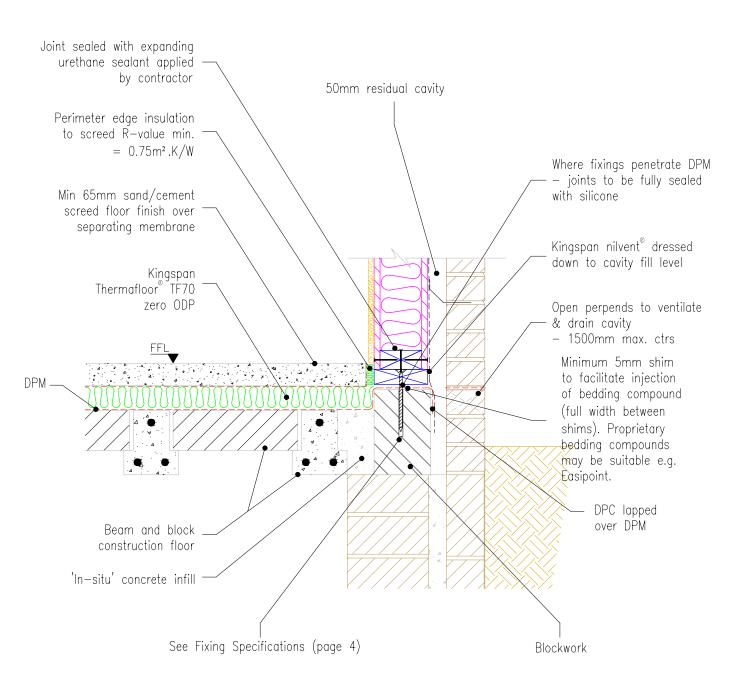
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Sectional elevation through wall junction with ground floor slab.

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J.L.	1:10		



 For further information regarding soleplate/combination soleplate and bottom plate fixings and the requirement for additional panel restraint see Fixing Specifications (page 4)

Shim Thickness	Shim Colour
2mm	Purple
3mm	Green
4mm	Yellow
5mm	Blue
6mm	Black



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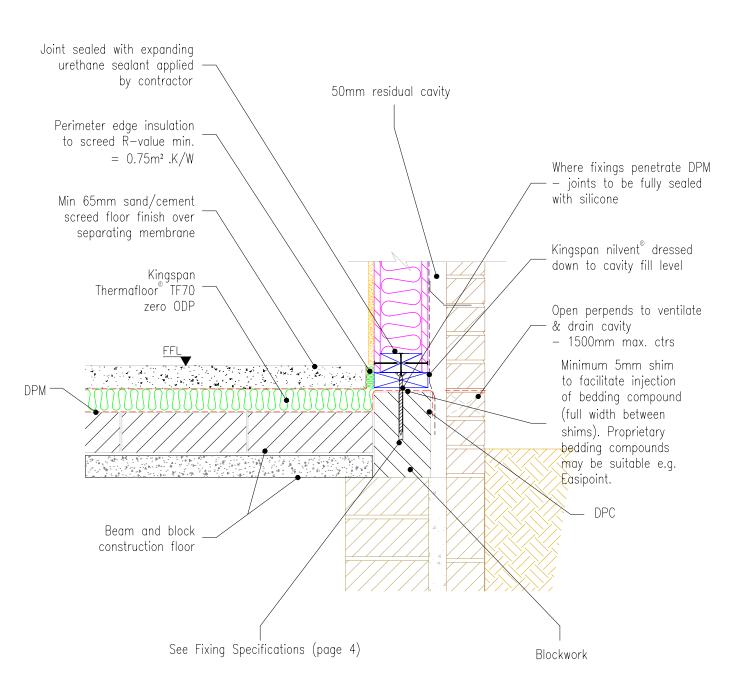
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# Sectional elevation through Beam and block floor support.

Date: 2/7/10

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 For further information regarding soleplate/combination soleplate and bottom plate fixings and the requirement for additional panel restraint see Fixing Specifications (page 4)

Shim Thickness	Shim Colour
2mm	Purple
3mm	Green
4mm	Yellow
5mm	Blue
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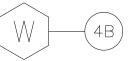
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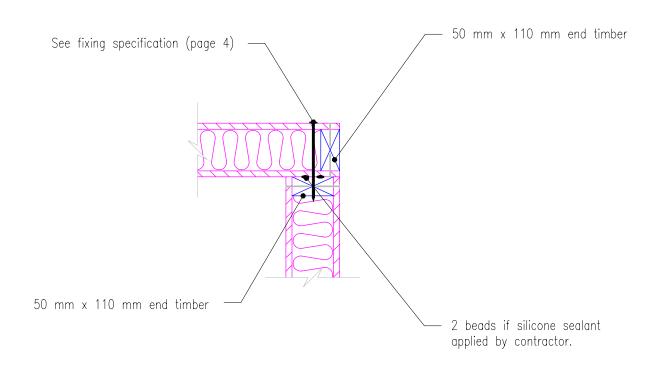
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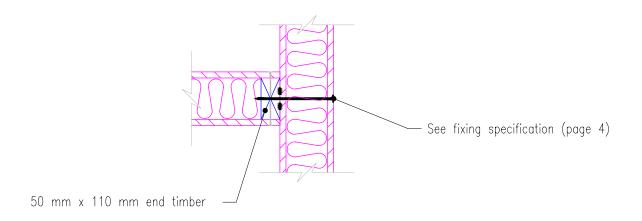
Sectional elevation through beam and block floor support.

Date: 2/7/10

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Plan showing typical wall connection detail.

Corner & T-junction.

Date: 2/7/10

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Kingspan nilvent® breather membrane dressed over cavity tray

Fixing clip to allow differential movement

Cavity tray with stop end

Weepholes at 900 mm max. centres (min. 2 per opening)

Silicone sealant

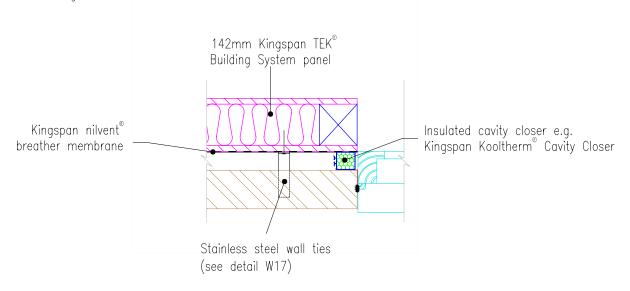
Kingspan TEK® Building System panel

Proprietary steel lintel

Insulated cavity closer e.g. Kingspan Kooltherm® Cavity Closer

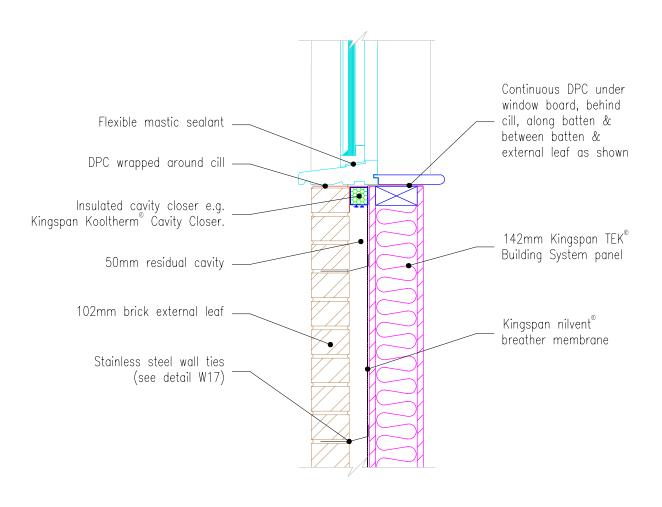
Section

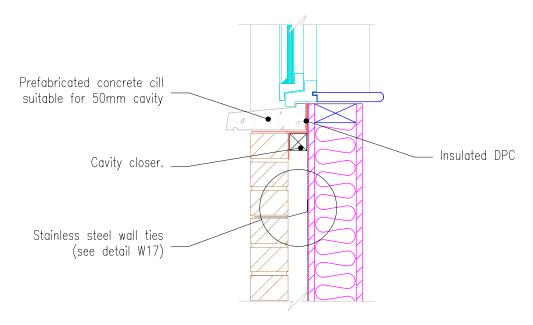
NB Restraint clips typically required @ 600 mm cts. along top edge of lintel. Fixings to be used in accordance with lintel manufacturer's recommendations.



### Plan









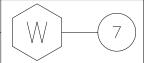
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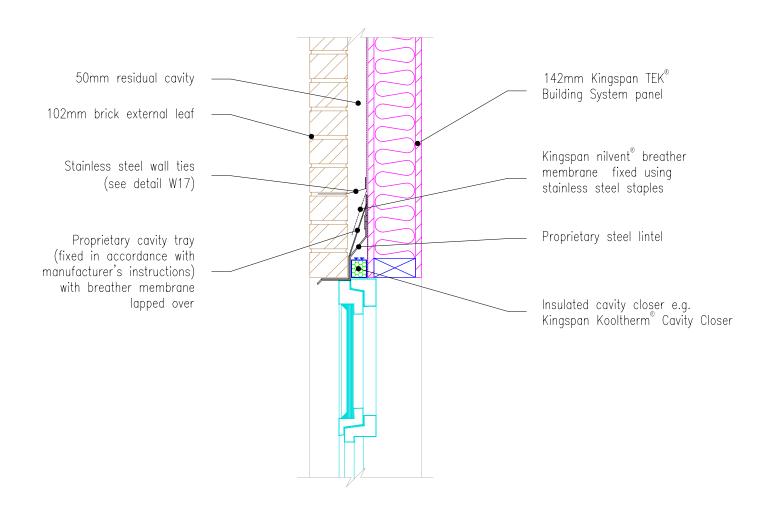
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### Typical section at window cill - brickwork external leaf

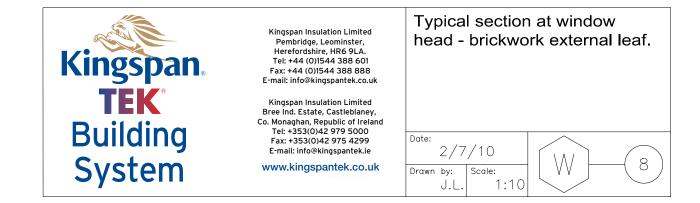
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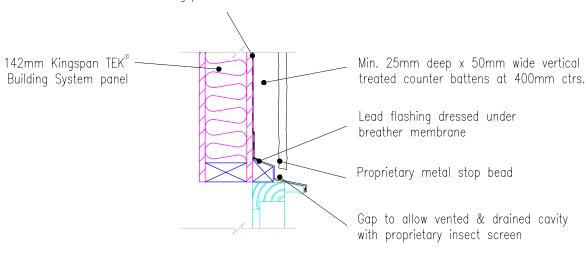


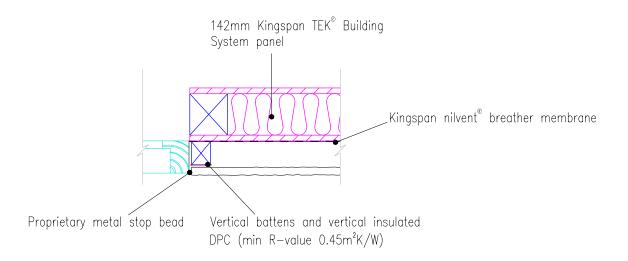


1. Restraint clips typically required @ 600 mm cts. along top edge of lintel. Fixings to be used in accordance with lintel manufacturer's recommendations.











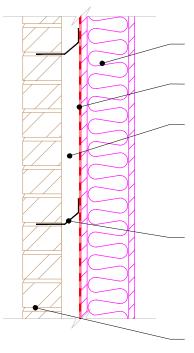
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## Typical window detail - ventilated cladding cavity

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142mm Kingspan TEK<sup>®</sup> Building System panel

Kingspan nilvent<sup>®</sup> breather membrane

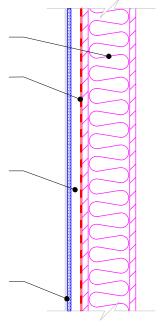
50mm residual cavity

Min 25mm deep x 50mm wide vertical treated counterbattens @ 400mm ctrs. providing a drained & vented cavity

Stainless steel wall ties (see detail W17)

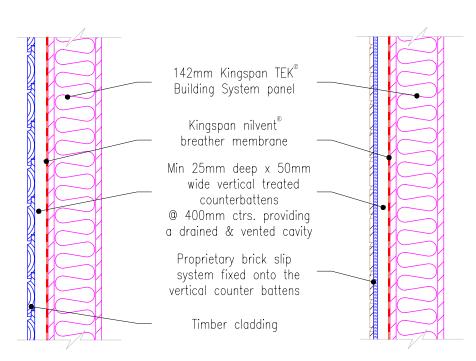
10mm cement bonded particle board with thin coat polymer render finish

102mm selected brickwork



Brick cavity finish

### Thin coat polymer render on vertical battens



Horizontal timber cladding finish on vertical battens

Proprietary brick slip finish on vertical battens

N.B. Screw fixings can be inserted directly into OSB3 skins.



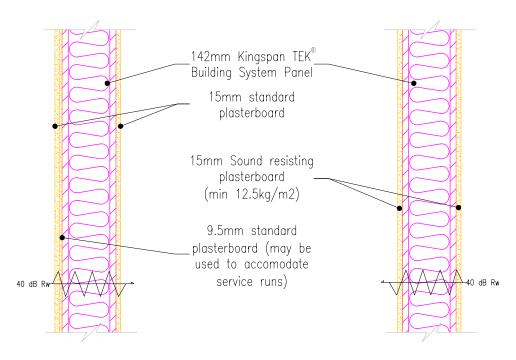
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## Standard external finishes.

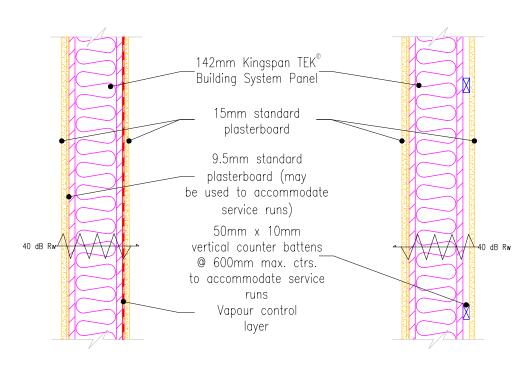
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Preferred internal wall construction (1)
(Rw = 40dB - See SRL test report C/03/5L/0848/1)

Preferred internal wall construction (2)

(Rw = 40dB - See BTC 13505 test report)

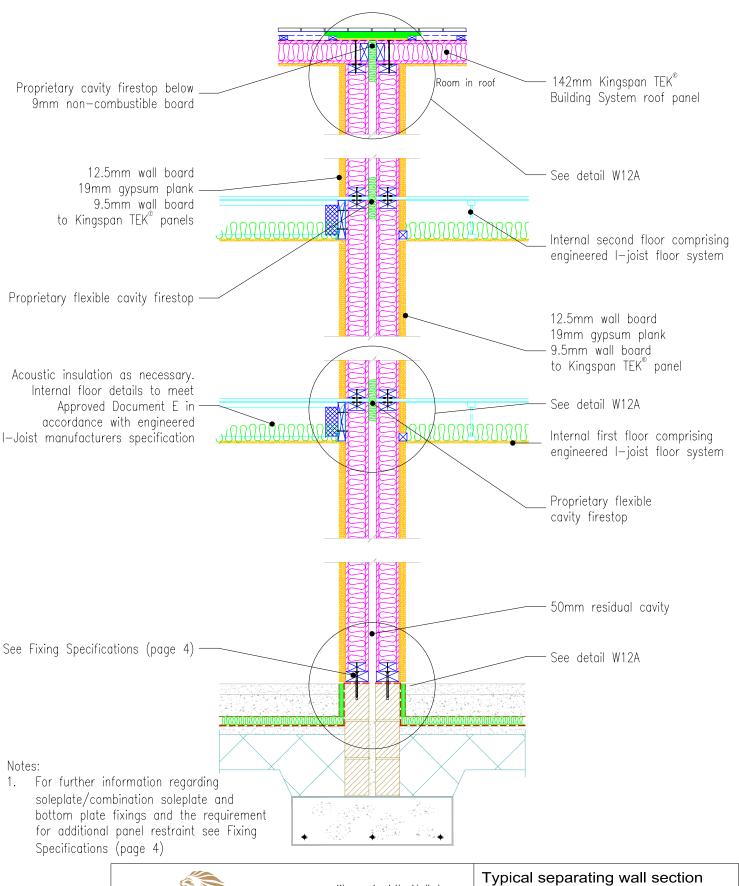


### Alternative wall construction with plasterboard & vapour control layer

### Alternative wall construction with plasterboard fixed on counter battens

N.B. Screw fixings can be inserted directly into OSB3 skins.







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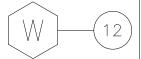
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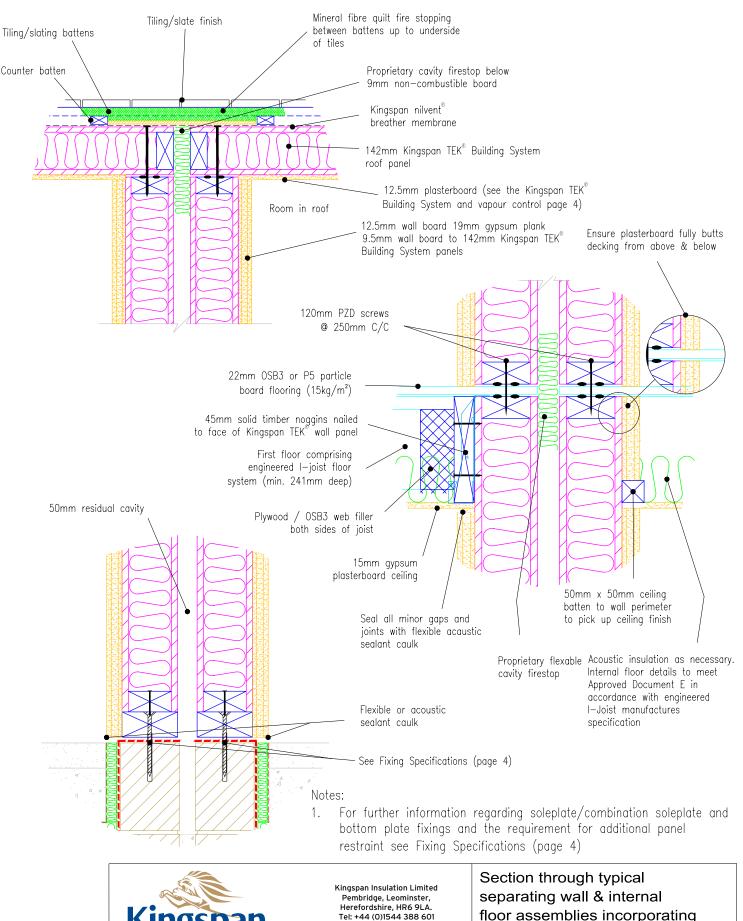
Typical separating wall section incorporating room in roof.

1:25

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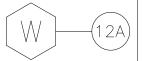
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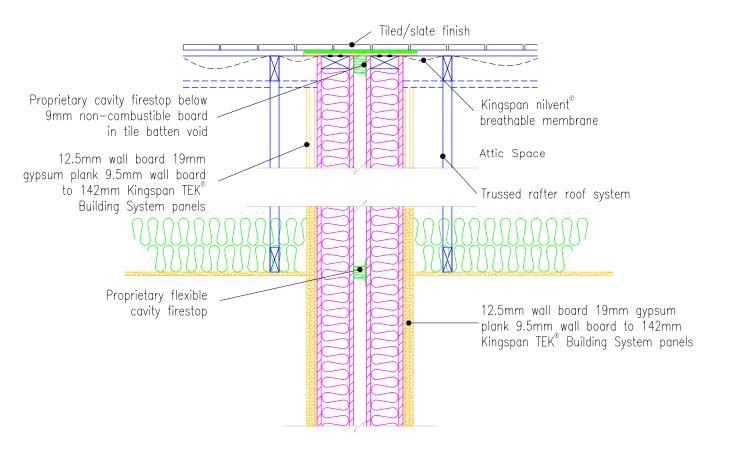
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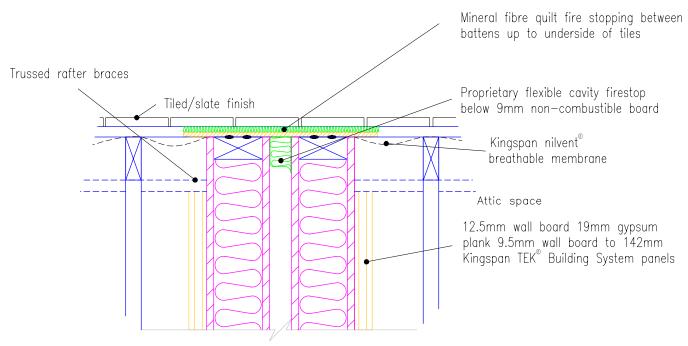
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floor assemblies incorporating room in roof.

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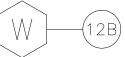
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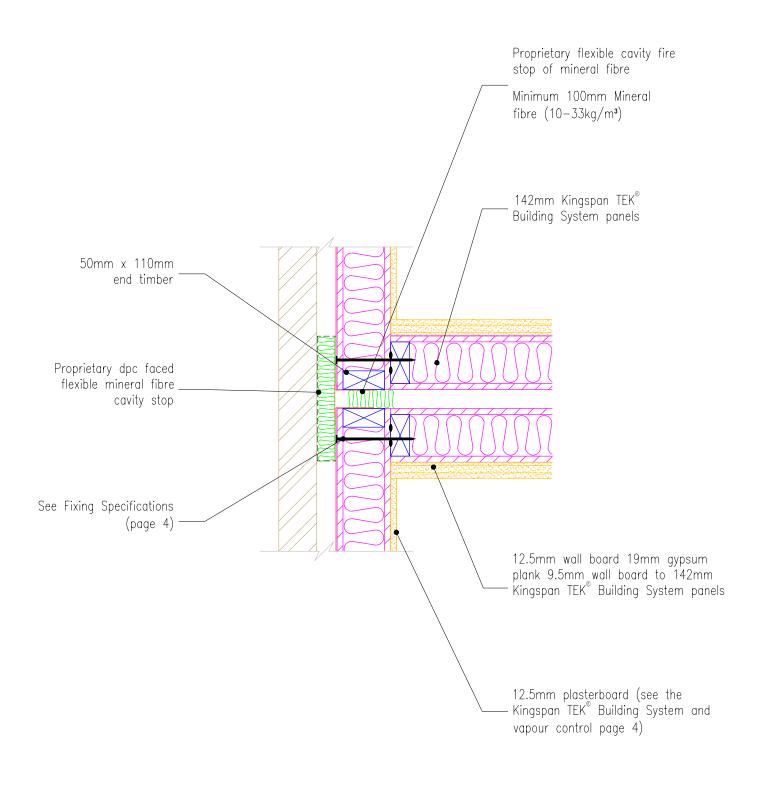
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Section through typical separating wall assemblies incorporating trussed rafter roof.

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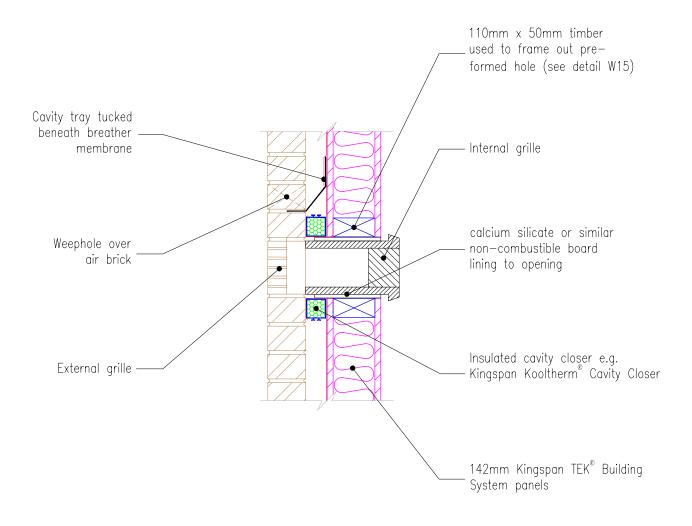
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Plan showing separating wall detail with brickwork external leaf incorporating flanking detail

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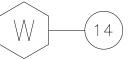
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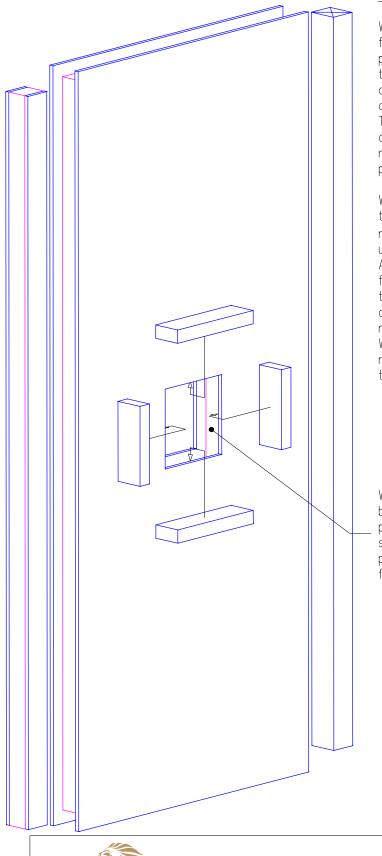
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Sectional elevation of ventilation inlet / outlet e.g. for MVHR system.

2/7/10

Drawn by: Scale: 1:10





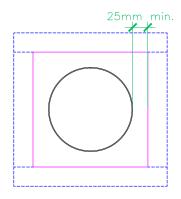
### NOTE:

When an appliance is not suitable for direct mounting on a wall panel it should be separated from the wall structure by a 75mm air gap or by 25mm of non—combustible material.

The latter is usually achieved by adding 12.5mm thickness of non—combustible board to the plasterboard lining.

Wall mounted boilers should be fixed to the wall panel as per boiler manufacturer's instructions using fully threaded screws. A pre-formed opening is to be framed out using 50 x 110mm timber scabs nailed @ 50mm min. cts. to receive flue leaving a minimum 25mm gap all round. When twin walled flue is used the minimum distance is measured from the outer face of the inner flue.

Wall openings cut on site must be agreed with Kingspan Insulation prior to cutting. Generally opening should be cut central to wall panels & minimum 500 mm from top of panel.



Front elavation - 1:10



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### Wall hung boiler installation.

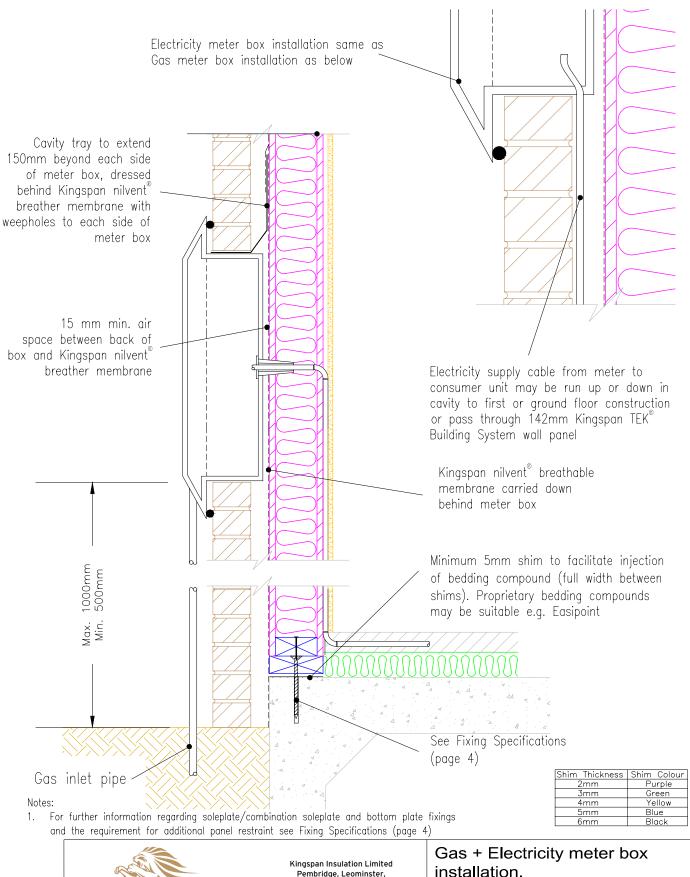
NTS

Date: 21/6/10

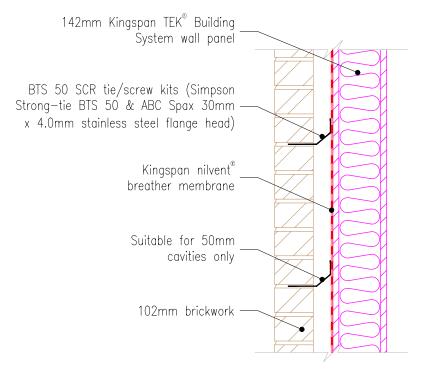
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J.L

15



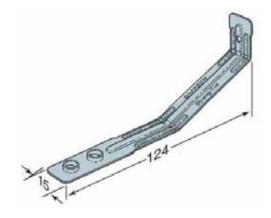




# Preferred Fixing of External brick cladding Simpson Strong Tie - BTS 50 SCR tie/screw kits

### BTS50

## ABC Spax flange head pozi-drive screw





Density of ties (wind speed less than or equal to 52m/sec) — 4.4 ties per m² (spacing — 600 x 375mm)

Density of ties (wind speed greater than 52m/sec) - 7.0 ties per m<sup>2</sup> (spacing - 600 x 225mm)



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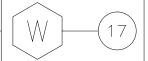
Kingspan Insulation Limited Bree Ind. Estate, Castleblaney, Co. Monaghan, Republic of Ireland Tel: +353(0)42 979 5000 Fax: +353(0)42 975 4299 E-mail: info@kingspantek.ie

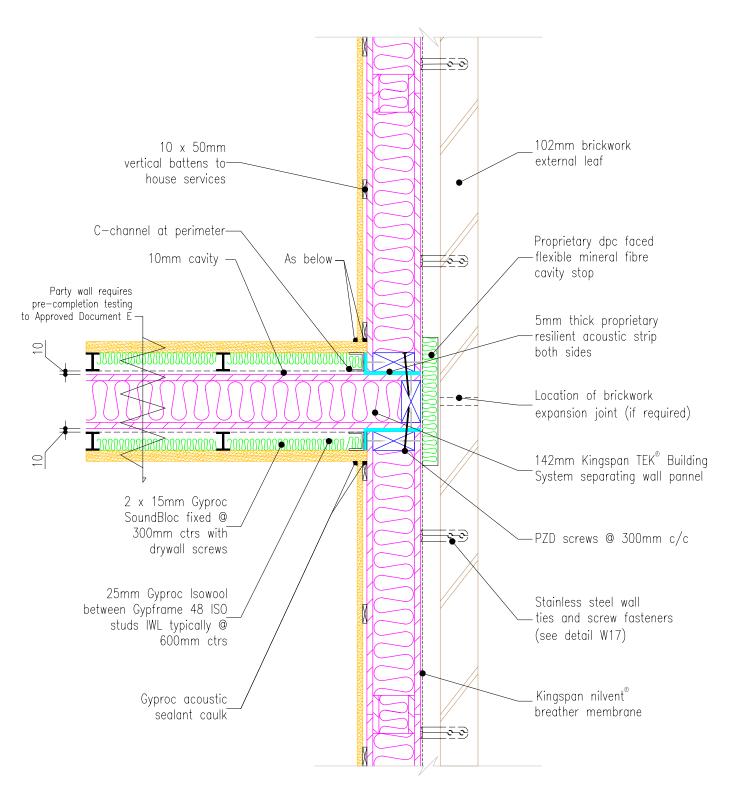
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External brick tie details for buildings not exceeding 4-storeys high

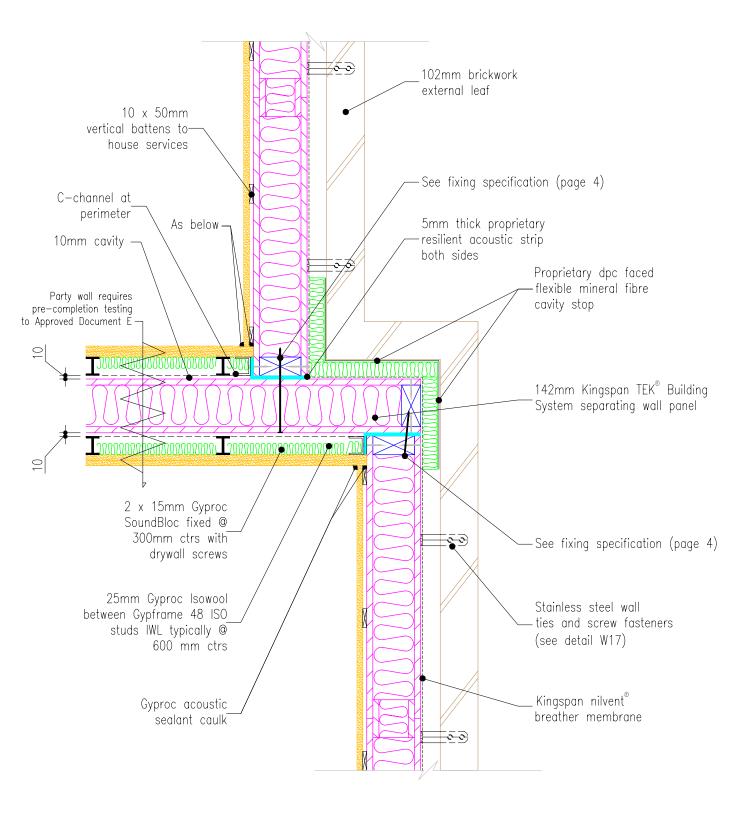
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Date: 2/7/10Drawn by: Scale:

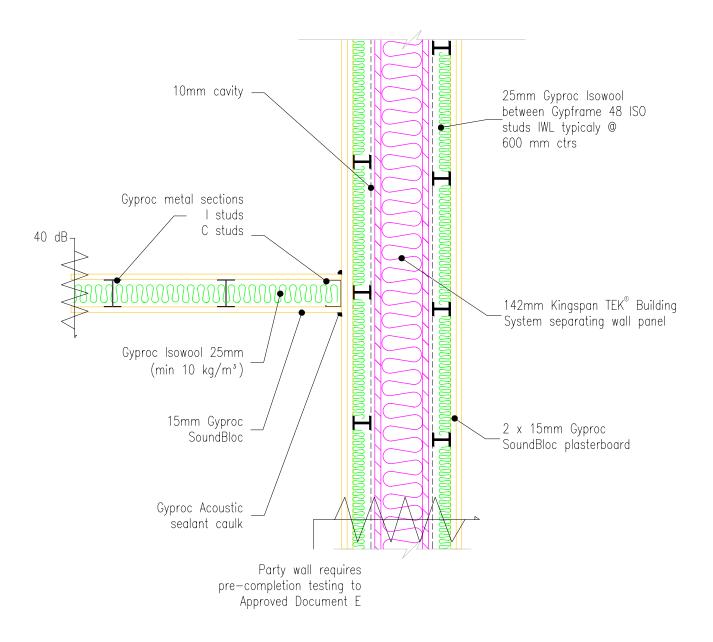




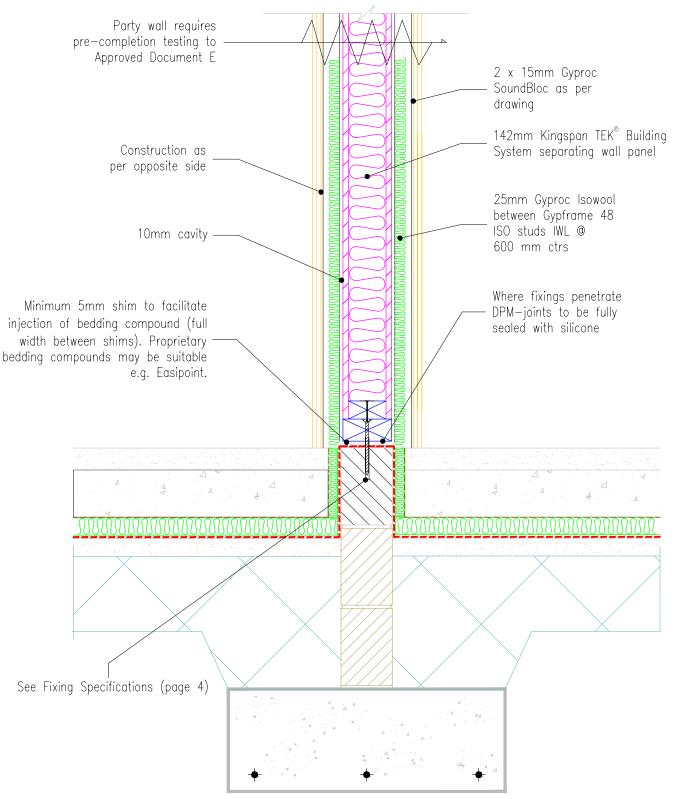












- 1. For further information regarding soleplate / combination soleplate and bottom plate fixings and the requirement for additional panel restaint see Fixing Specifications (page 4)
- 2. All joints/gaps to be sealed with tape or Gyproc Acoustic sealant caulk

Shim Thickness	Shim Colour
2mm	Purple
3mm	Green
4mm	Yellow
5mm	Blue
6mm	Black



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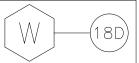
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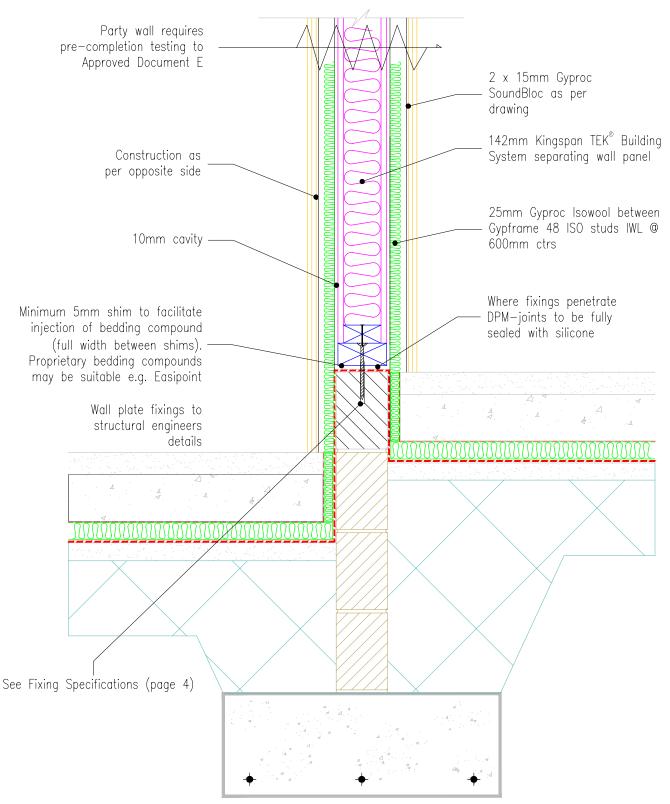
www.kingspantek.co.uk

Kingspan TEK<sup>®</sup> Building System single separating wall junction - ground floor slab detail

Date: 2/7/10

Drawn by: Scale: 1:10





- For further information regarding soleplate/combination soleplate and bottom plate fixings and the requirement for additional panel restraint see Fixing Specifications (page 4)
- 2. All joints/gaps to be sealed with tape or Gyproc Acoustic sealant caulk

Shim Thickness	Shim Colour
2mm	Purple
3mm	Green
4mm	Yellow
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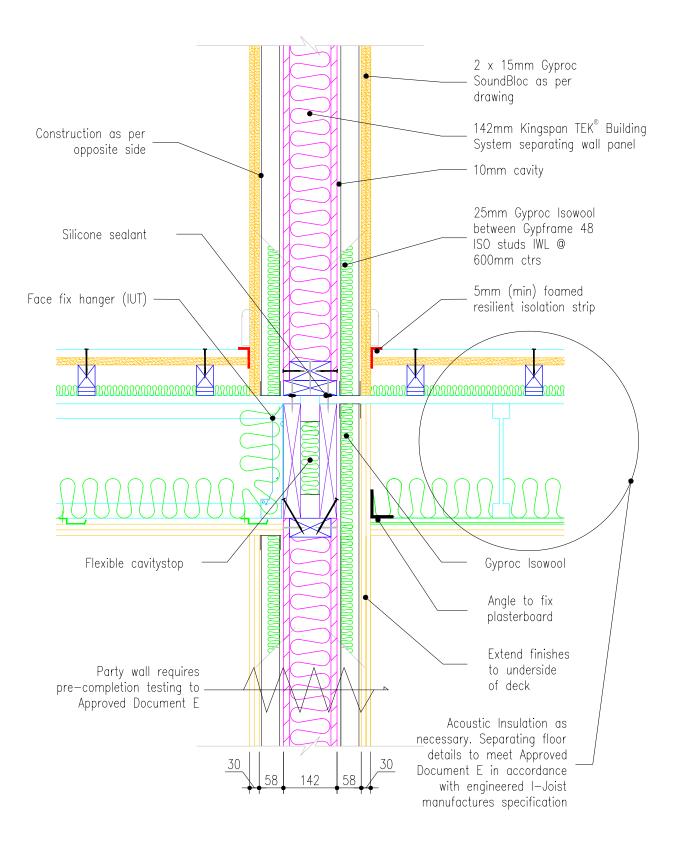
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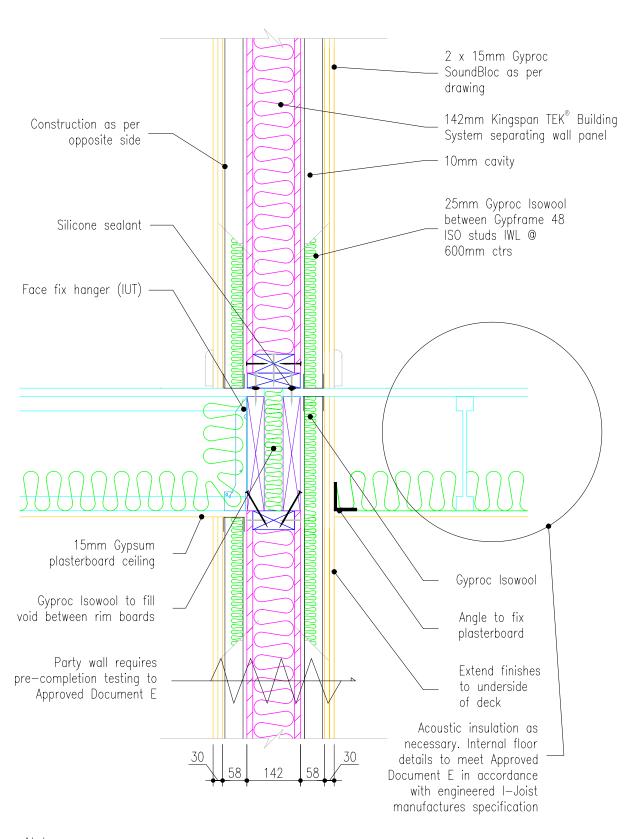
Kingspan TEK<sup>®</sup> Building System single seperating wall junction - stepped ground floor slab detail

- stepped ground floor slab detail

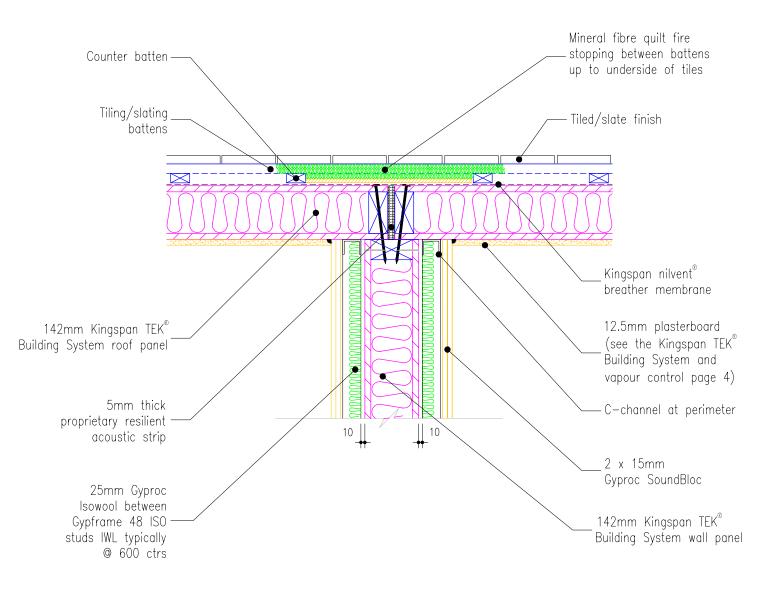




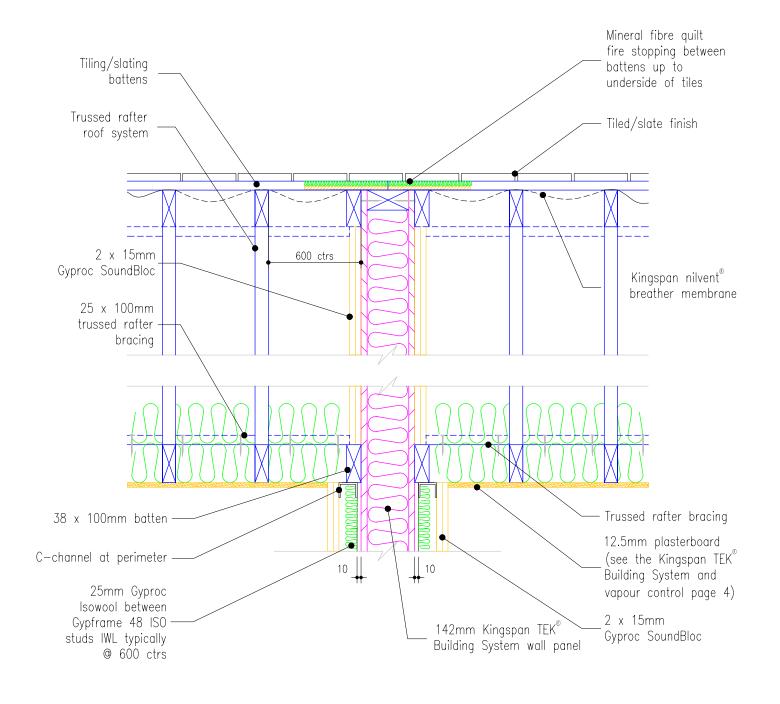




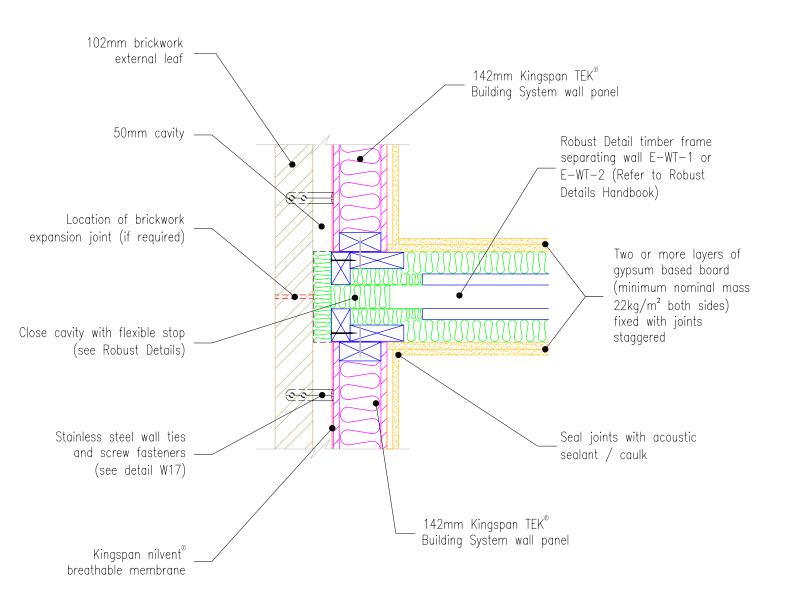








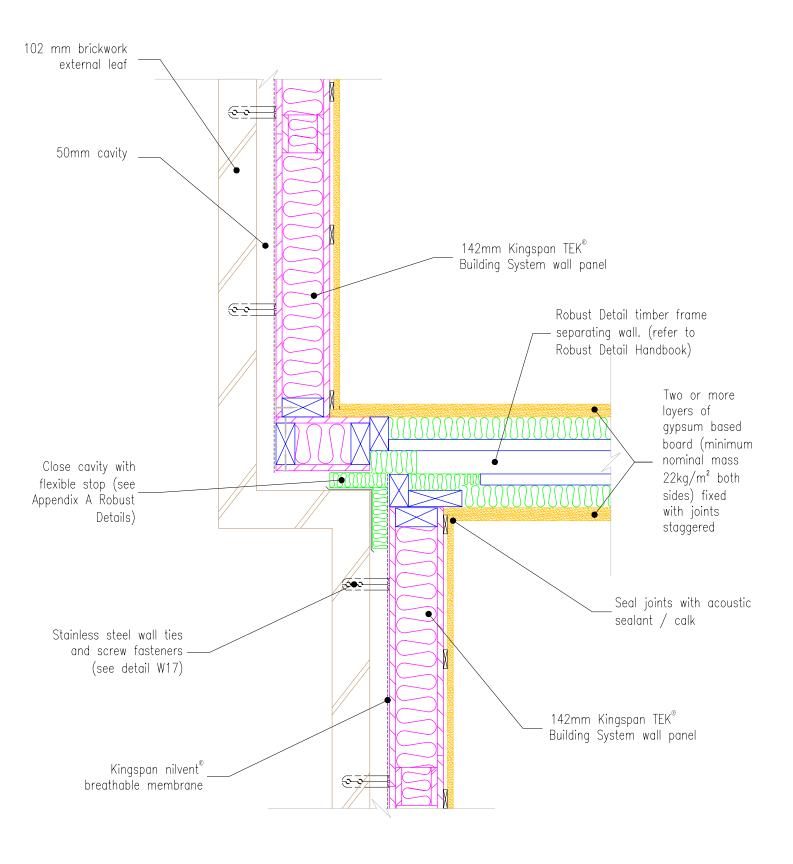




#### Notes

1. All joints/gaps to be sealed with tape or acoustic sealant / caulk

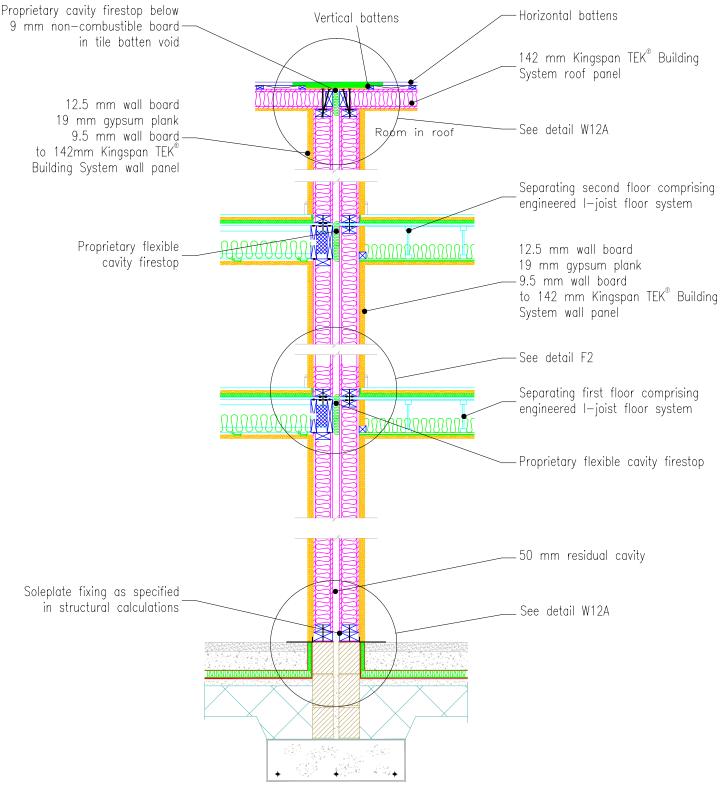




#### Notes:

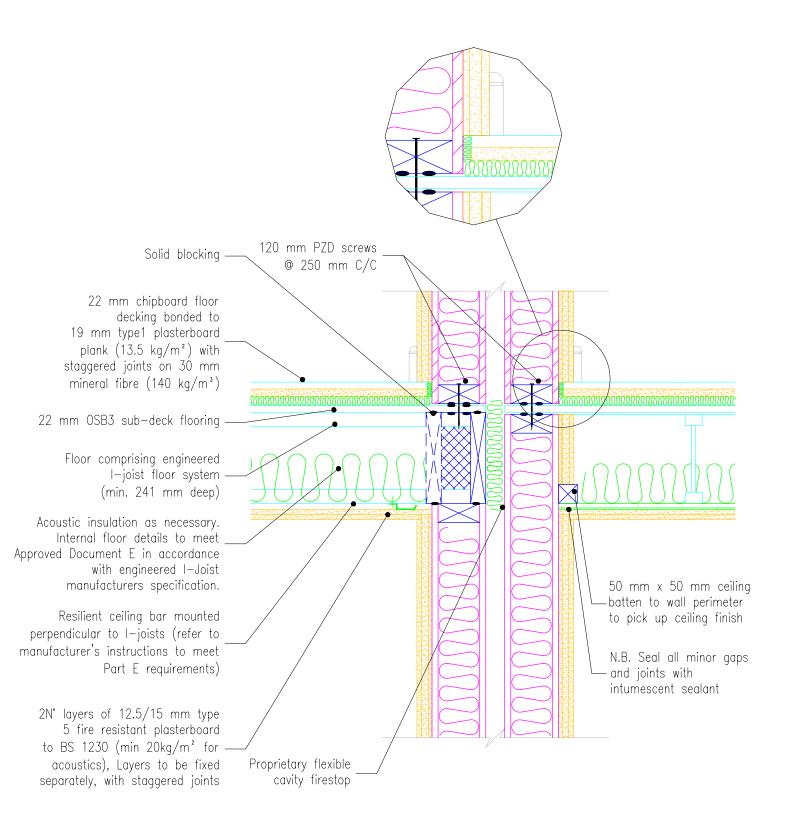
1. All joints/gaps to be sealed with tape or acoustic sealant / caulk





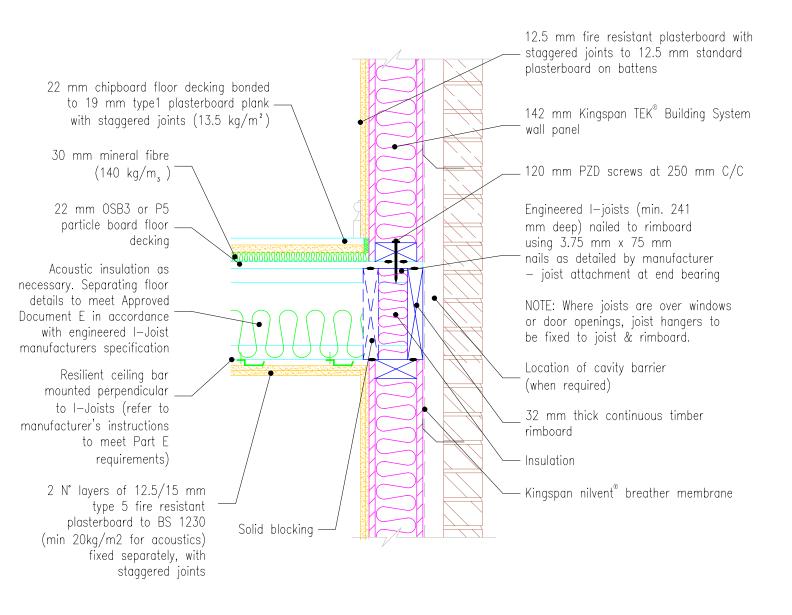
Alterations for separating floor construction can be found in UK Timber Frame Association (UKTFA) Part E guidelines document





Alterations for separating floor construction can be found in UK Timber Frame Association (UKTFA) Part E guidelines document



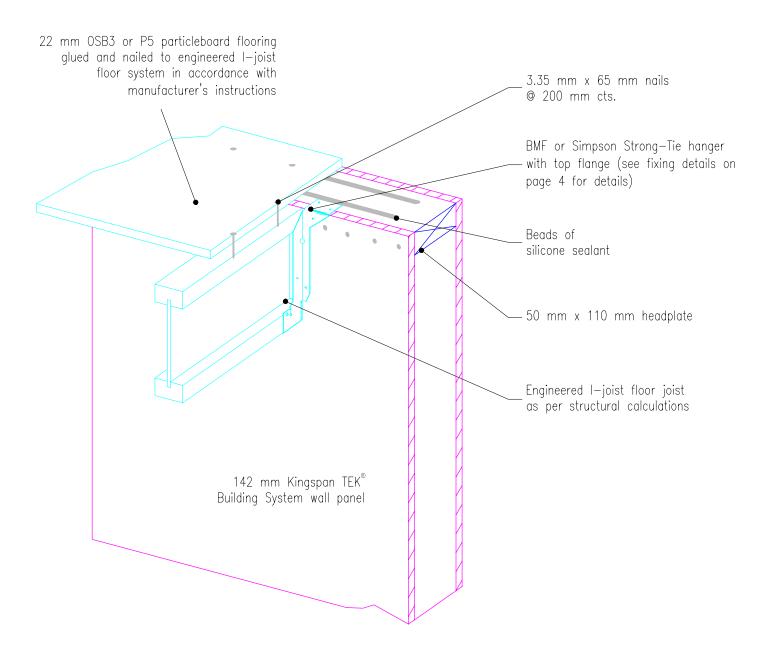




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Separating floor detail. Platform frame. Non-Robust detail pre completion test (pct) required





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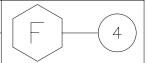
www.kingspantek.co.uk

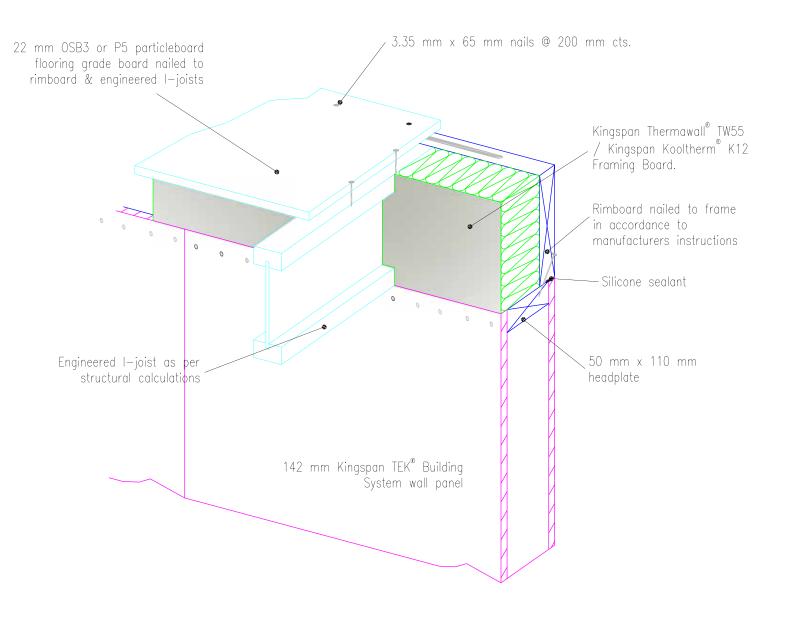
Typical connection detail for engineered I-joist floor system.

1:10

Drawn by: | Scale:

C.M







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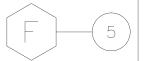
Alternative I-joist / wall panel connection detail fixed to rimboard.

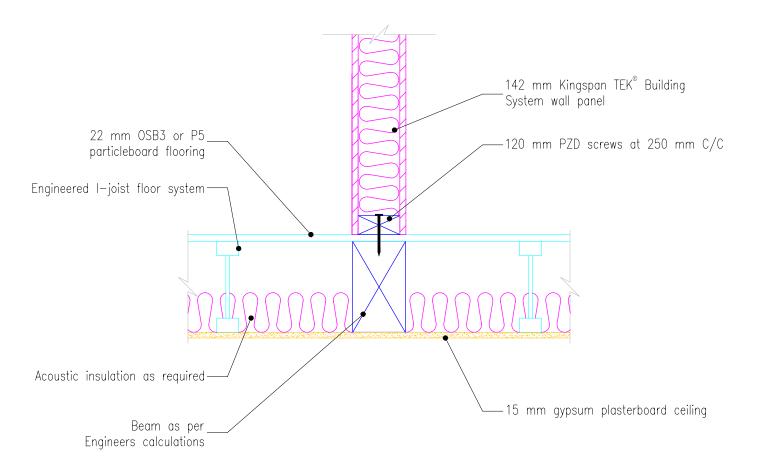
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Date: 19/08/10

Drawn by: Scale:

C.M







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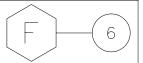
www.kingspantek.co.uk

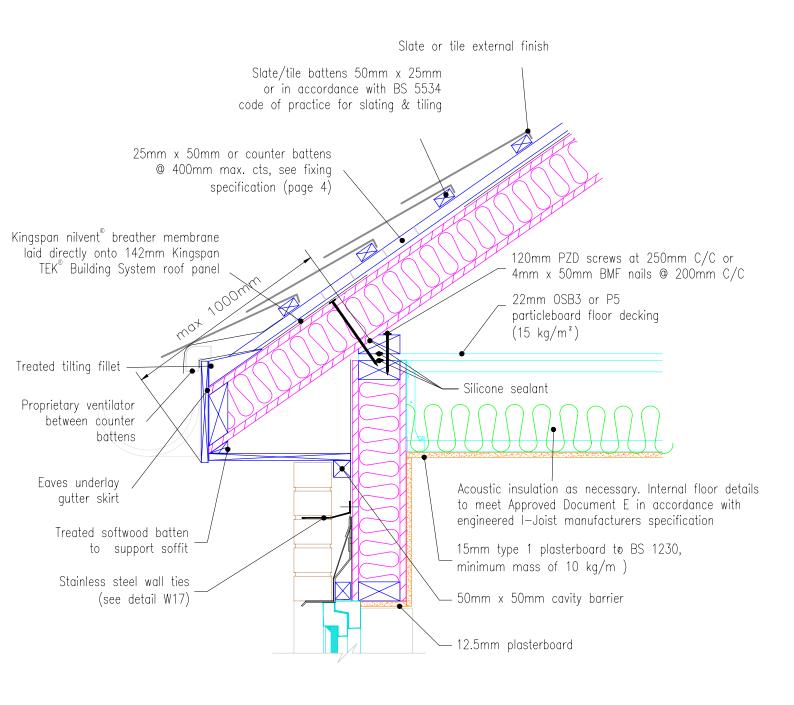
# Internal load bearing floor detail.

1:10

Drawn by: | Scale:

 $\mathsf{C}.\mathsf{M}$ 







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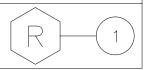
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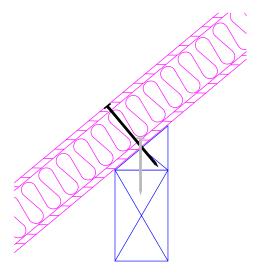
Typical eaves detail vertical section with Kingspan TEK<sup>®</sup> Building System pitched roof panel

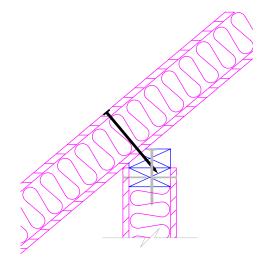
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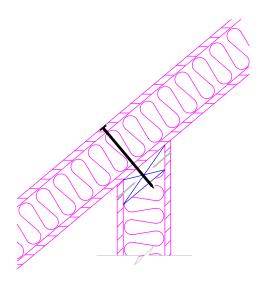




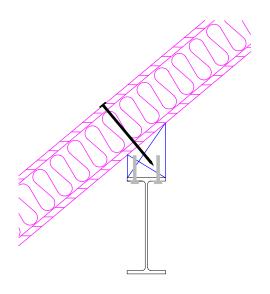


Purlin connection

Dwarf wall connection.



Internal wall connection.



Steel purlin connection.



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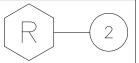
# Internal roof support details at 40 degrees pitch

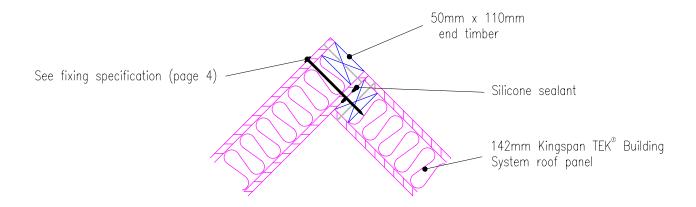
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Date: 19/08/10

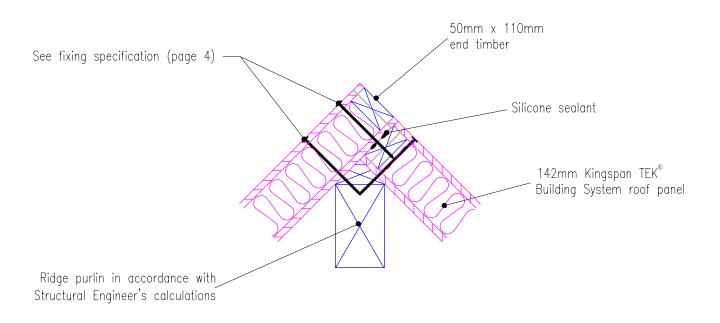
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C.M



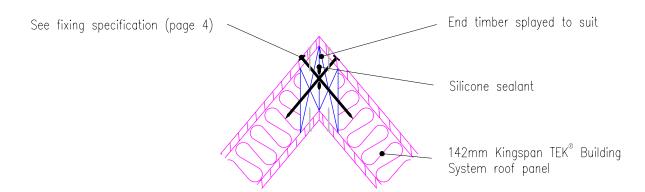


### Overlaid ridge without support

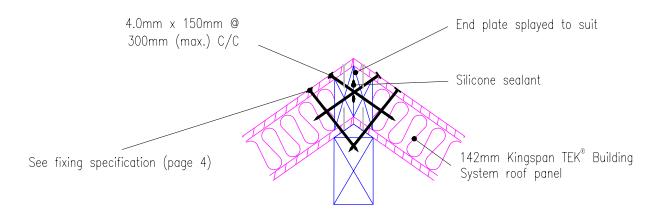


## Overlaid ridge with support



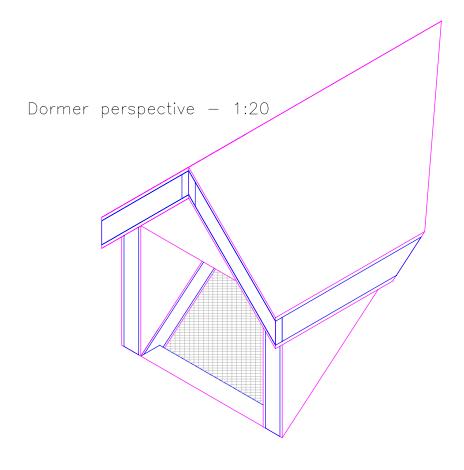


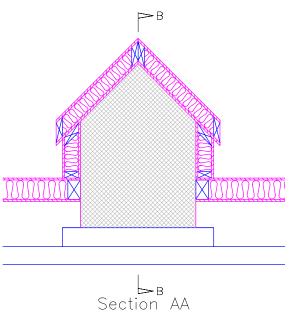
### Mitred ridge without support

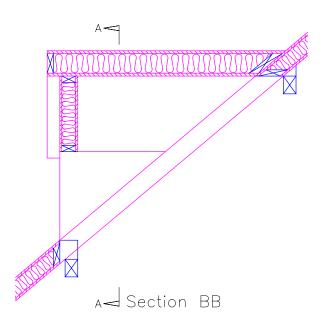


### Mitred ridge with support











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Room in roof dormer perspective & section detail.

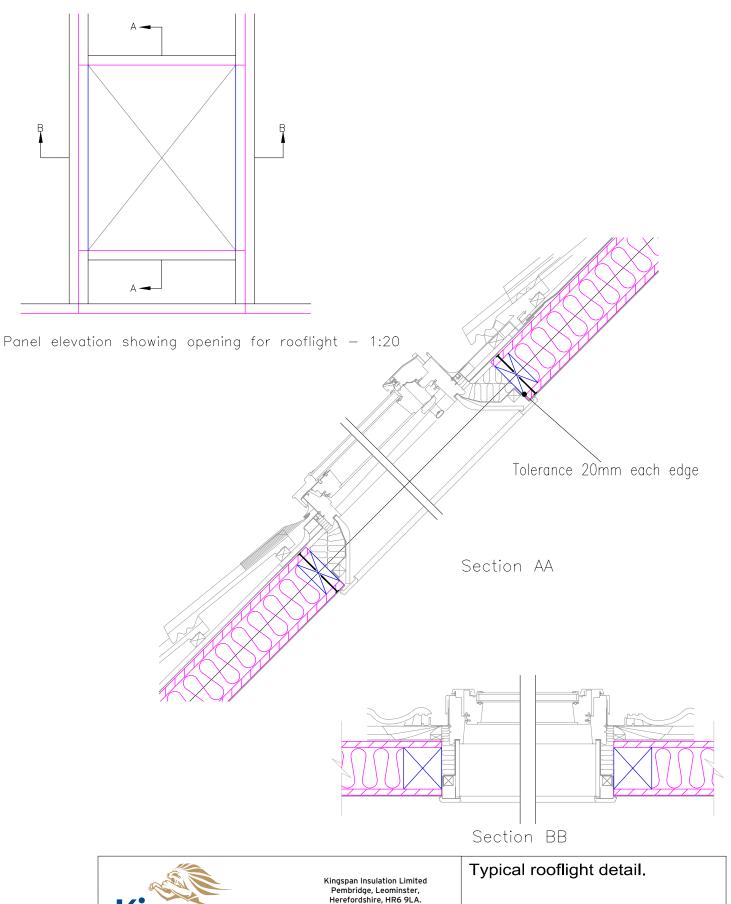
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Date: 19/08/10

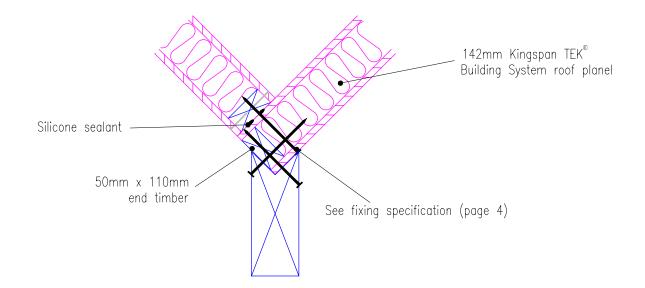
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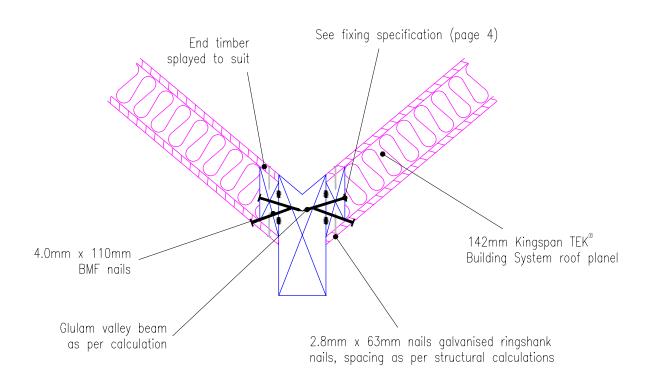
(R)—(5)





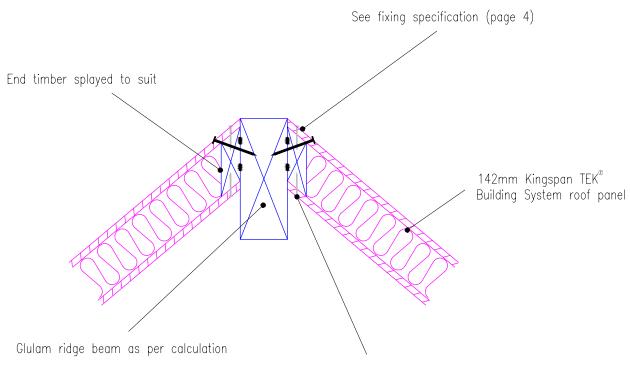


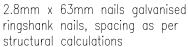
### Roof panels connected over valley rafter with support



### Roof panels connected to valley rafter









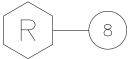
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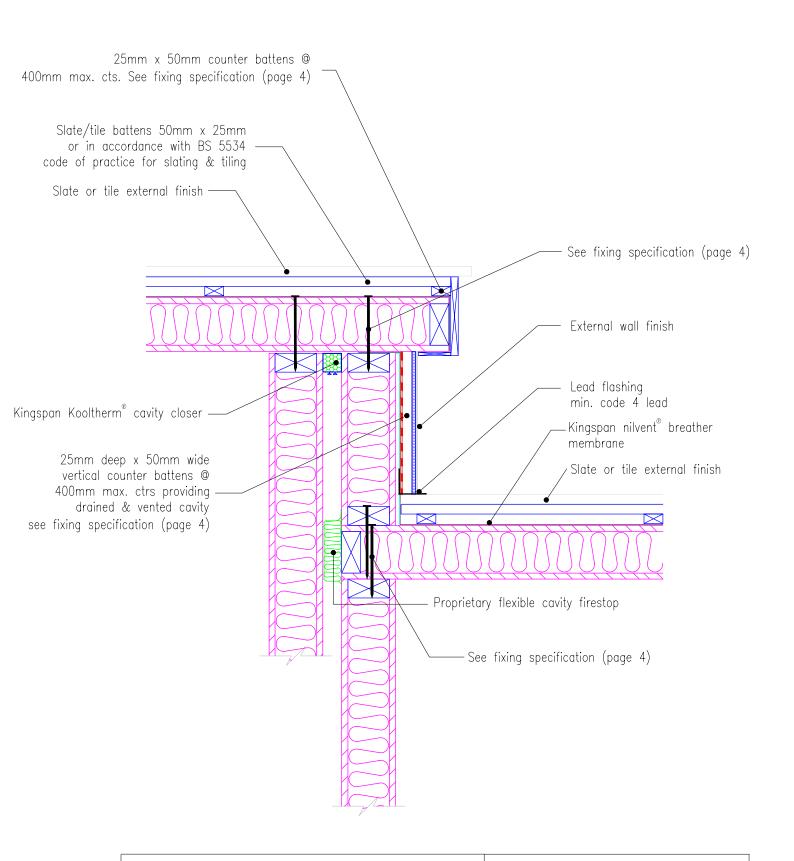
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Typical hip detail showing roof panels connected to hip rafter.

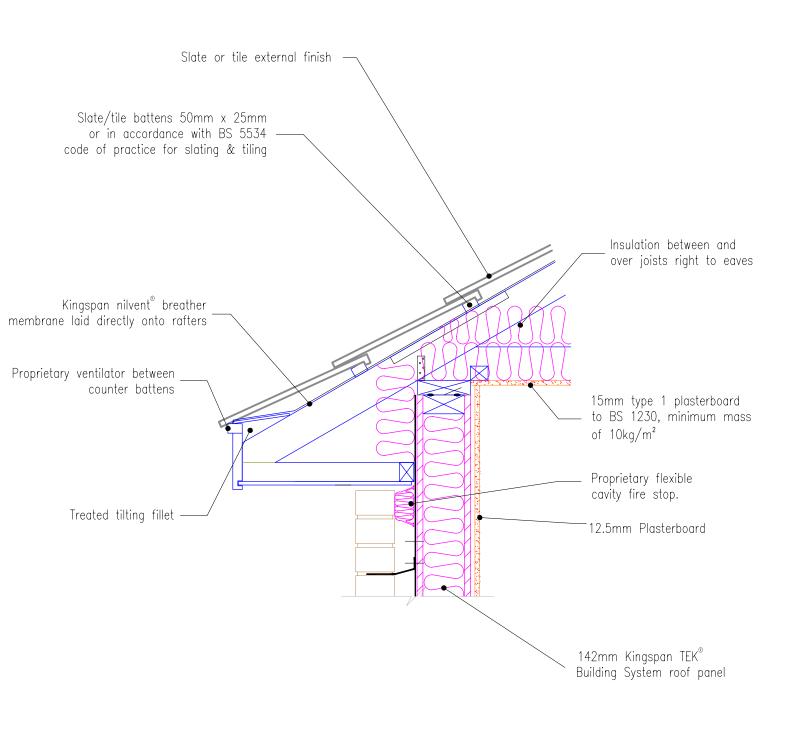
Date: 19/08/2010

Drawn by: Scale: C.M 1:10











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Typical eaves detail vertical section with truss rafter pitched roof

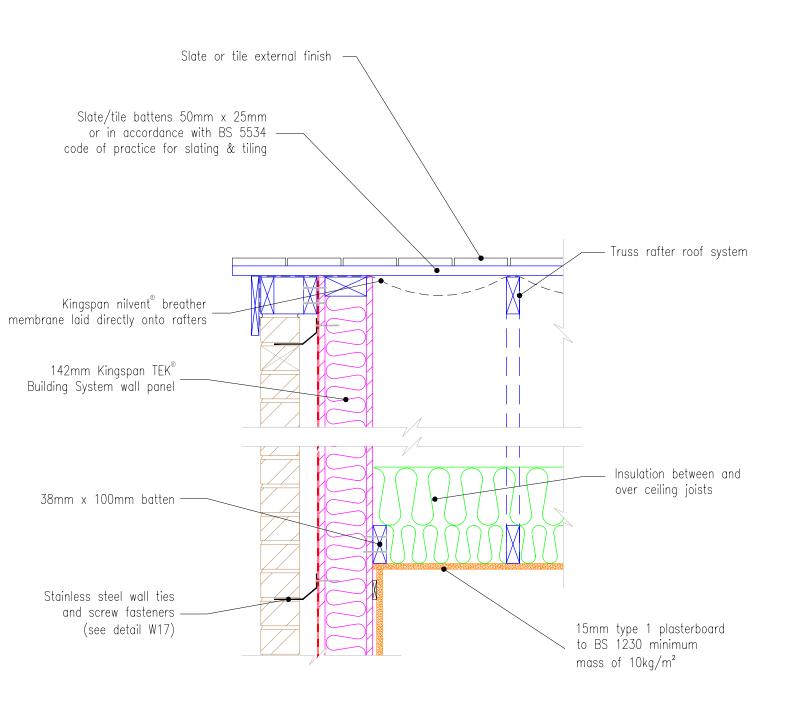
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Date: 9/9/2010

Drawn by: Scale:

J.L

R 10





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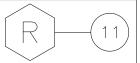
Kingspan TEK Building System gable junction - truss rafter roof with insulation at ceiling level

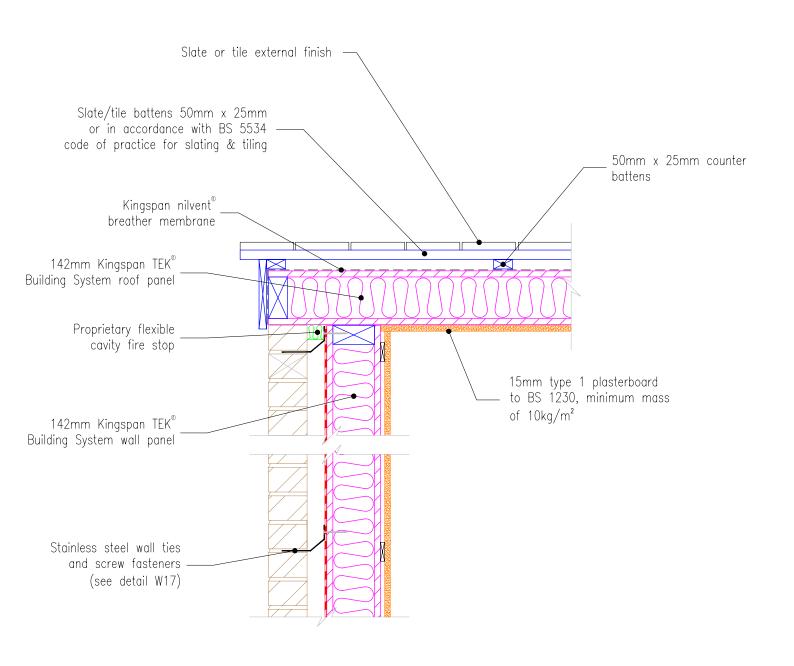
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Drawn by: Scale:

1:10

J.L







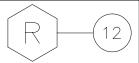
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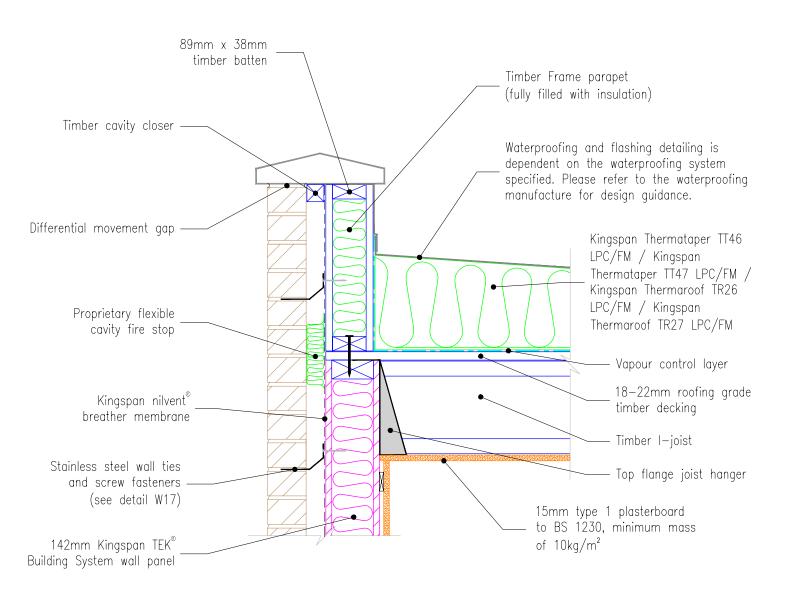
www.kingspantek.co.uk

Kingspan TEK Building System gable junction - Kingspan TEK Building System roof panel

Date: 22/11/2010

Drawn by: Scale: 1:10



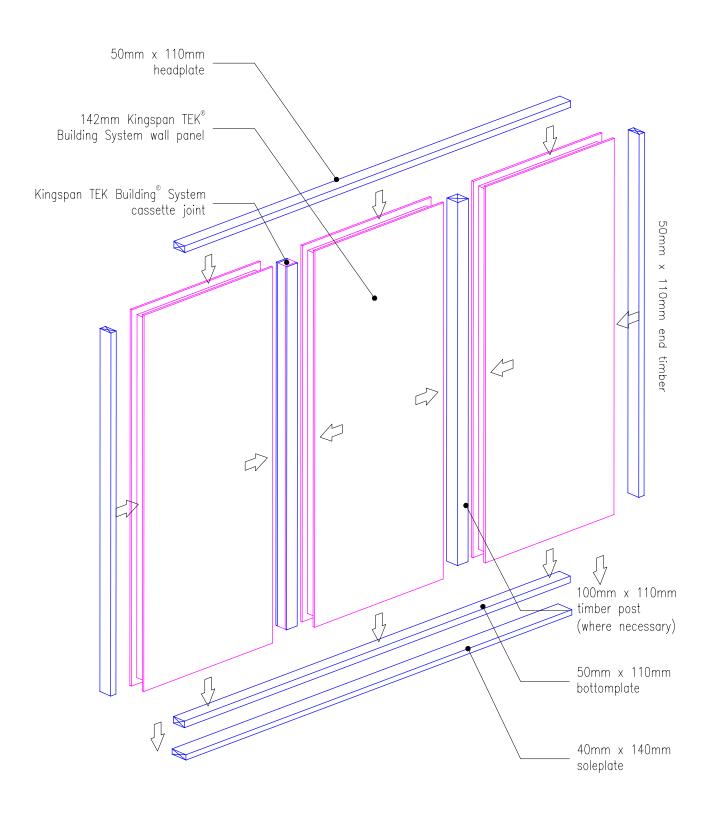




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Kingspan TEK Building System external wall junction with warm deck flat roof - timber frame parapet wall





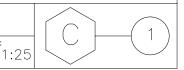
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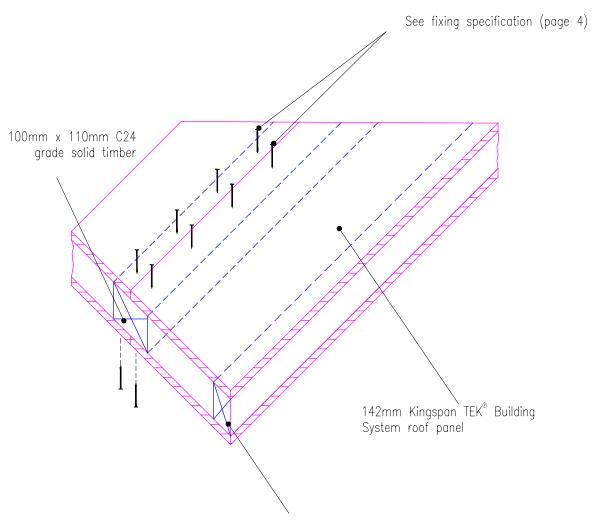
www.kingspantek.co.uk

Typical panel joints for Kingspan TEK®Building System wall panels.

Date: 6/7/10

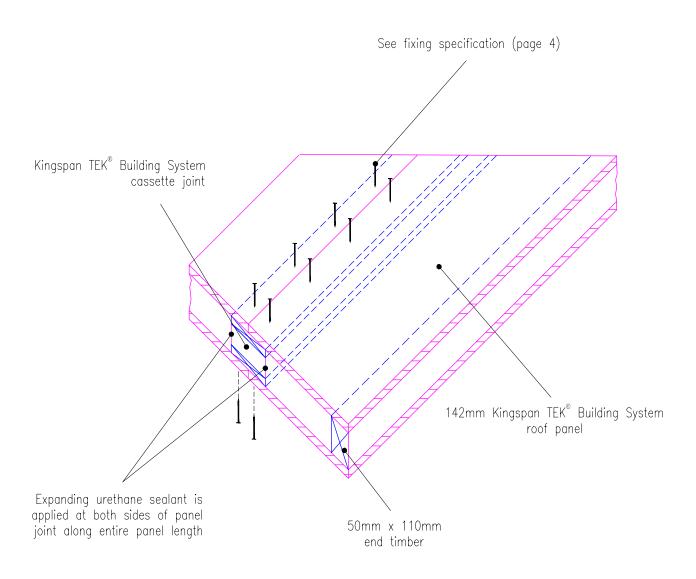
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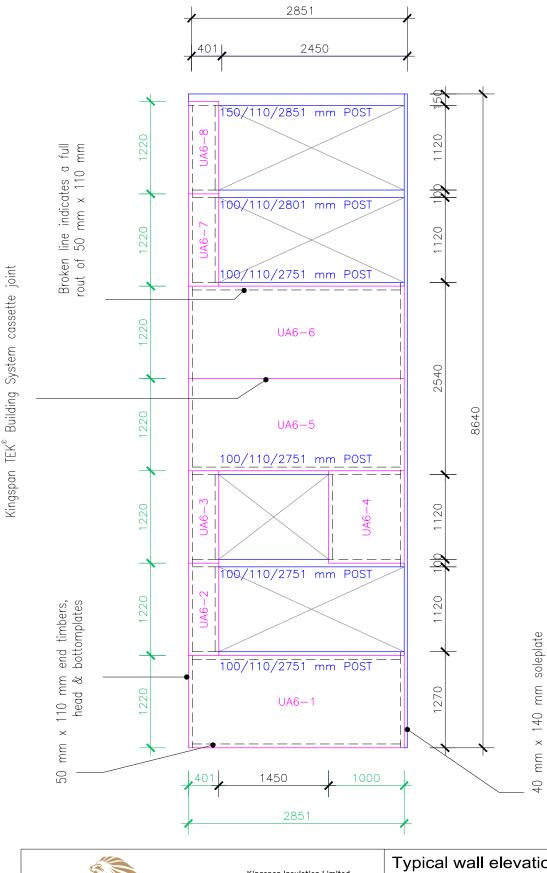




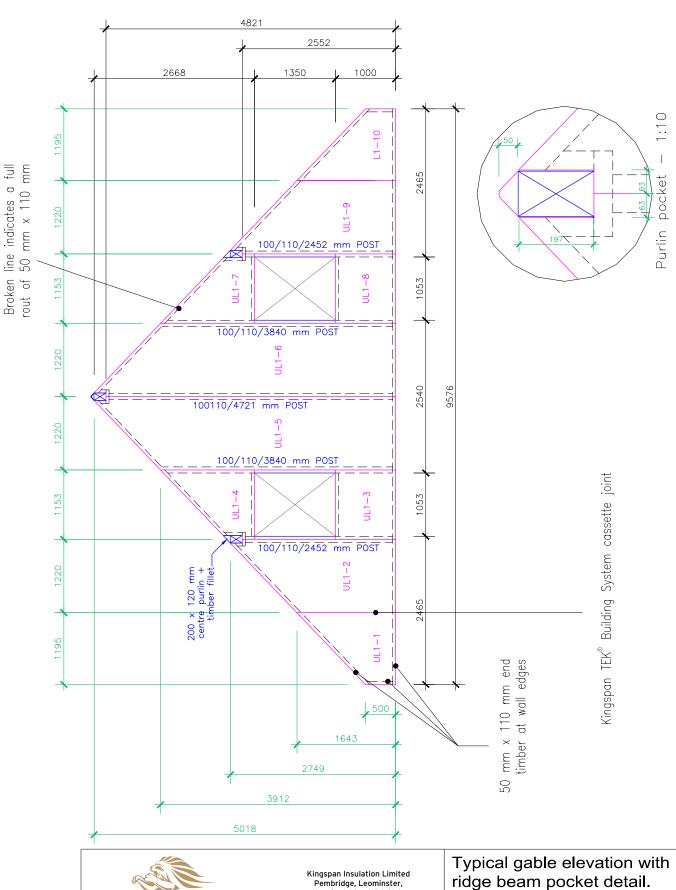












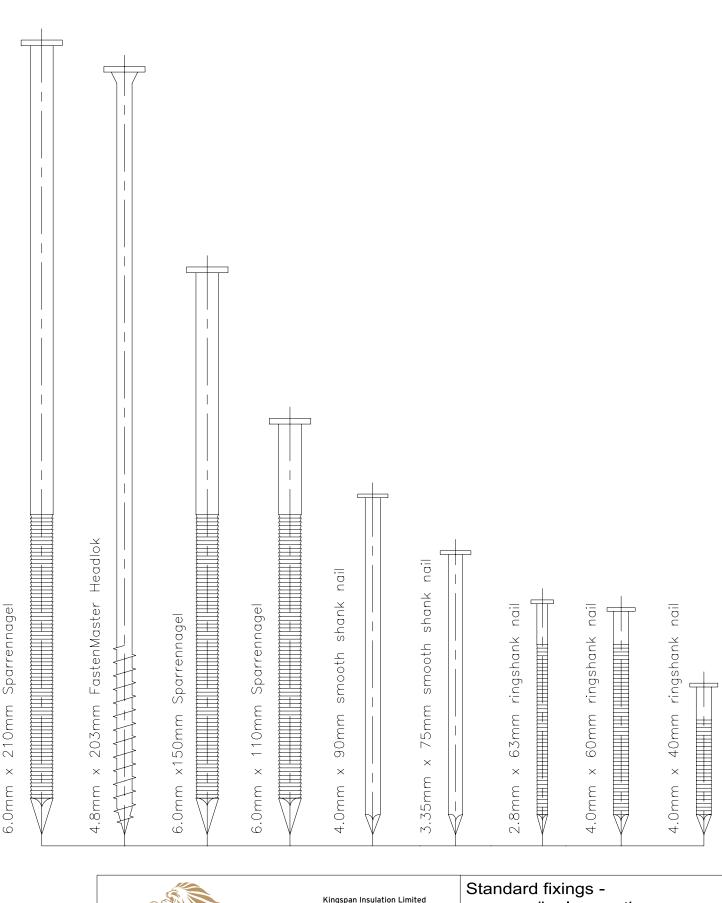


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6/7/10 5 Scale: Drawn by: 1:75





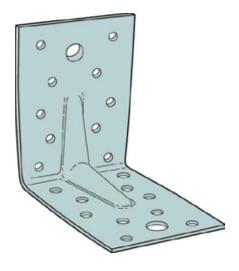
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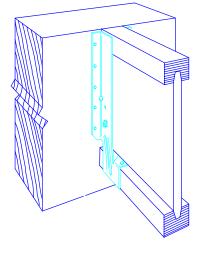
www.kingspantek.co.uk

Standard fixings sparrennägel, smooth, ringshanks nails & SIP screw

Date: 6/7/10

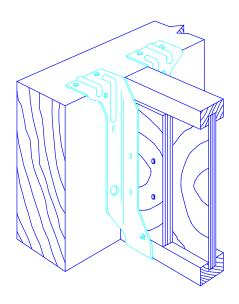
Drawn by: Scale: J.L. 1:1





Angle bracket - NTS

Face mounted joist hanger



Top flange joist hanger with optional web-stiffness



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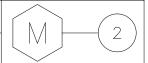
www.kingspantek.co.uk

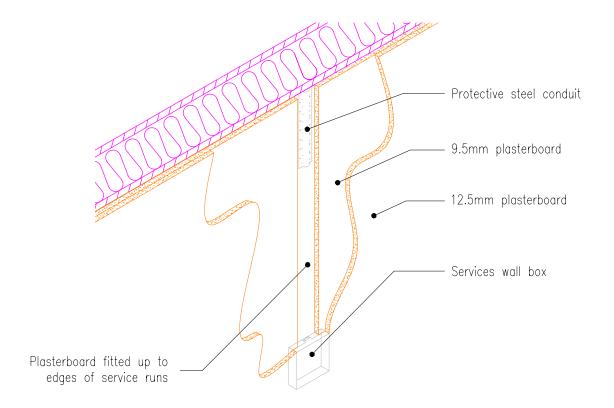
# Standard fixings - hangers & brackets.

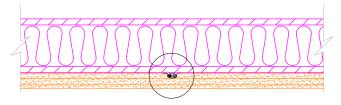
1:5

Date: 6/7/10

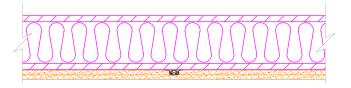
Drawn by: Scale:



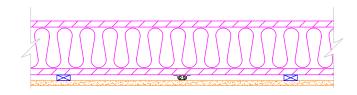




Wall section using triple layer plasterboard to create channel for party wall mounted services.



Wall section using double layer plasterboard to create channel for internal wall mounted services.



Alternate method using plasterboard on counter battens to create channel for internal wall mounted services.



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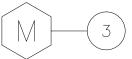
Kingspan Insulation Limited Bree Ind. Estate, Castleblaney, Co. Monaghan, Republic of Ireland Tel: +353(0)42 979 5000 Fax: +353(0)42 975 4299 E-mail: info@kingspantek.ie

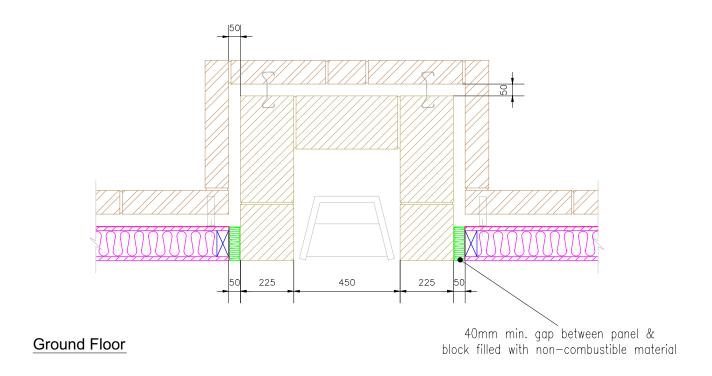
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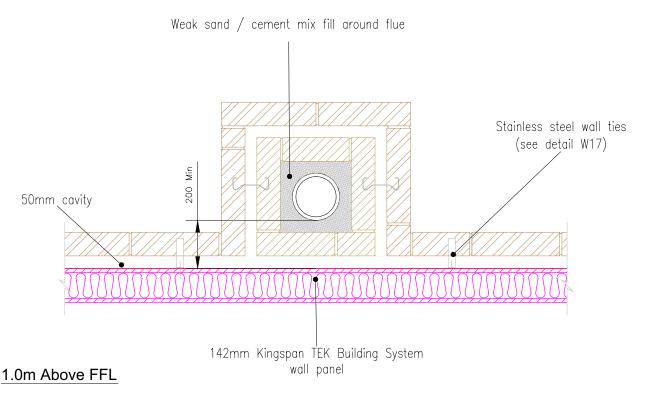
# Wall mounted services detail - electrical.

Date: 6/7/10

Drawn by: Scale: J.L. 1:10

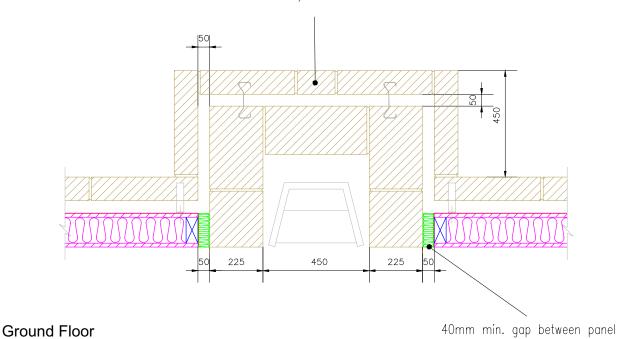








### 100mm block/brick external leaf



& block filled with non-combustible material

Stainless steel wall ties (see detail W17)

1.0m Above FFL

142mm Kingspan TEK Building System roof panel



# **Contact Details**

### **Customer Service**

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

UK - Tel: +44 (0) 1544 388 601 - Fax: +44 (0) 1544 388 888 - email: customerservice@kingspantek.co.uk Ireland - Tel: +353 (0) 42 979 5000 - Fax: +353 (0) 42 975 4299

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### Technical Advice

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

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

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

The Kingspan Insulation British Technical Service Department operates under a management system certified to the BBA Scheme for Assessing the Competency



of Persons to Undertake U-value and Condensation Risk Calculations.

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

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- email: technical@kingspantek.ie

### Literature & Samples

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

Kingspan **TEK**® technical literature is an essential specification tool. For copies please contact the Kingspan Insulation Marketing Department or visit the Kingspan **TEK**® website, using the details below:

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- email: literature@kingspantek.co.uk- www.kingspantek.co.uk/literature

Ireland - Tel: +353 (0) 42 979 5000 - Fax: +353 (0) 42 975 4299

- email: info@kingspantek.ie- www.kingspantek.ie/literature

### **General Enquiries**

For all other enquiries contact Kingspan Insulation on the numbers below:

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