



Ashley House
Technical Note – Thermal Performance

June 2023

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Project	Ashley House
Issue	Draft
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Date	15 June 2023

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Ashley House

Technical Note – Thermal Performance

Document History

Date	Version
15 June 2023	Draft for comment

Key

	Conductivity (W/mK)	Colour in diagrams
Floor Insulation	0.018	
XPS	0.033	
Cavity Insulation	0.035	
Drylining Insulation	0.036	
Acoustic edge insulation	0.040	
Thermal Break	0.090	
Y-Wall / Coreboard	0.120	
Floor Material	0.130	
Sealant	0.170	
Block Below Ground	0.240	
Plasterboard	0.250	
Brick	0.770	
Brick Below Ground	1.000	
Screed / Concrete	2.000	
Soil	2.000	
RC Concrete	2.100	

Comments

The floor slab insulation has a very low thermal conductivity a typical high-performance floor insulation would be 0.020 or 0.021 W/mK.

Thermal Break thermal conductivity is based on a high-level assessment using 80mm Schöck Sconnex® type W thermal breaks at 2m centres with 0.031 W/mK insulation between connections.

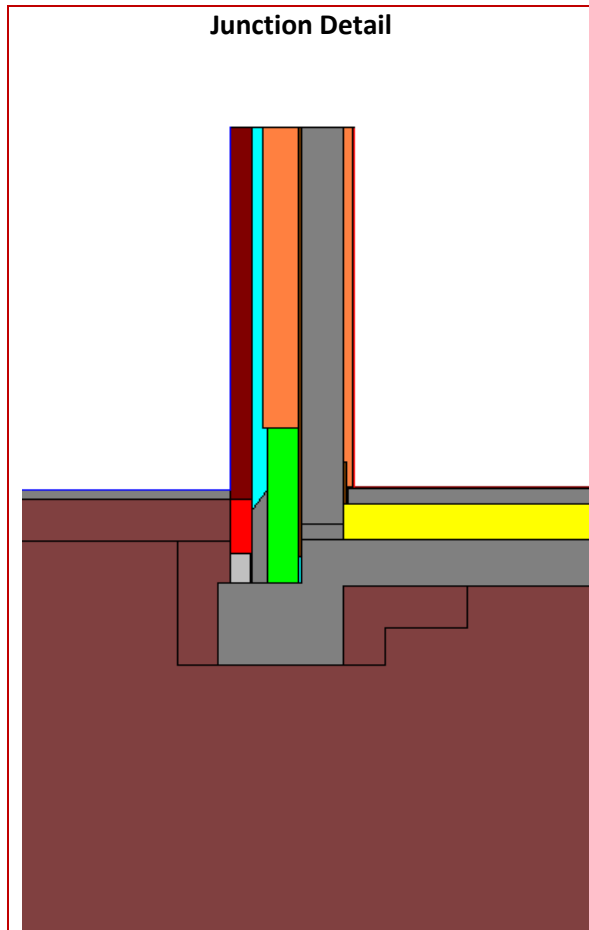
Results

Results are tabulated below.

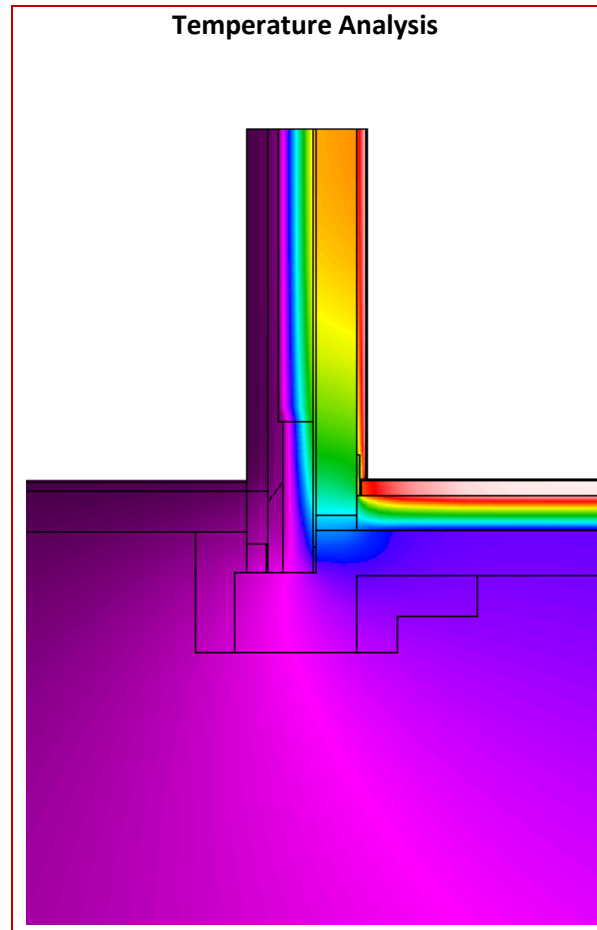
	External Wall	Party Wall	fRsi Ext	fRsi Party
Counterfactual	0.29	0.31	0.85	0.95
Thermal Break	0.16	0.12	0.91	0.98
External Insulation only	0.26	0.24	0.86	0.96
Both External and Thermal Break	0.15	0.09	0.91	0.98

U-values that sit within the Passivhaus 0.15W/m²K requirements are highlighted in red. These calculations prove that a thermal break is required.

Project	Ashley Road
PRP Reference	BP10456
Document Scope	Linear Thermal Transmittance and Temperature Factor
Detail	Counterfactual Wall to Floor

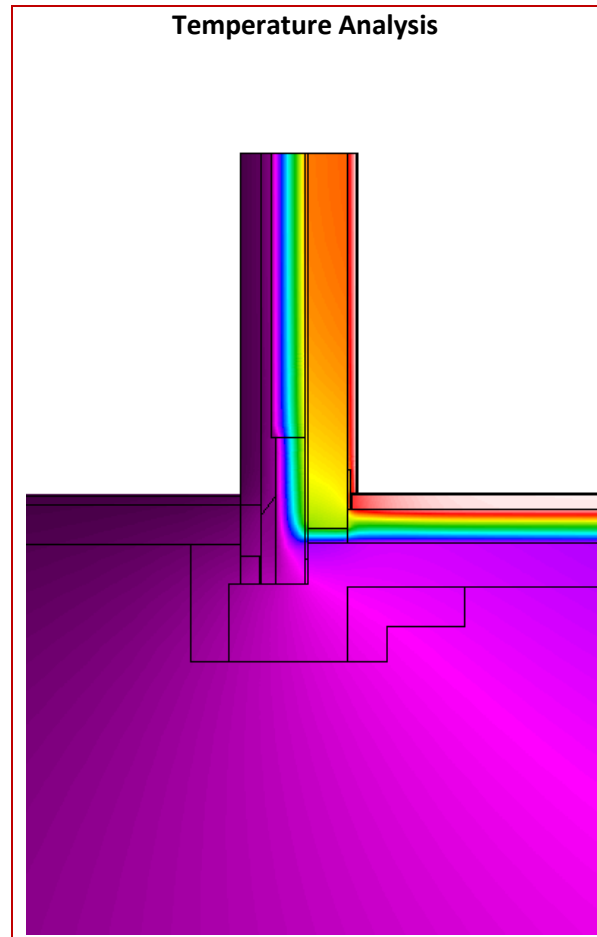
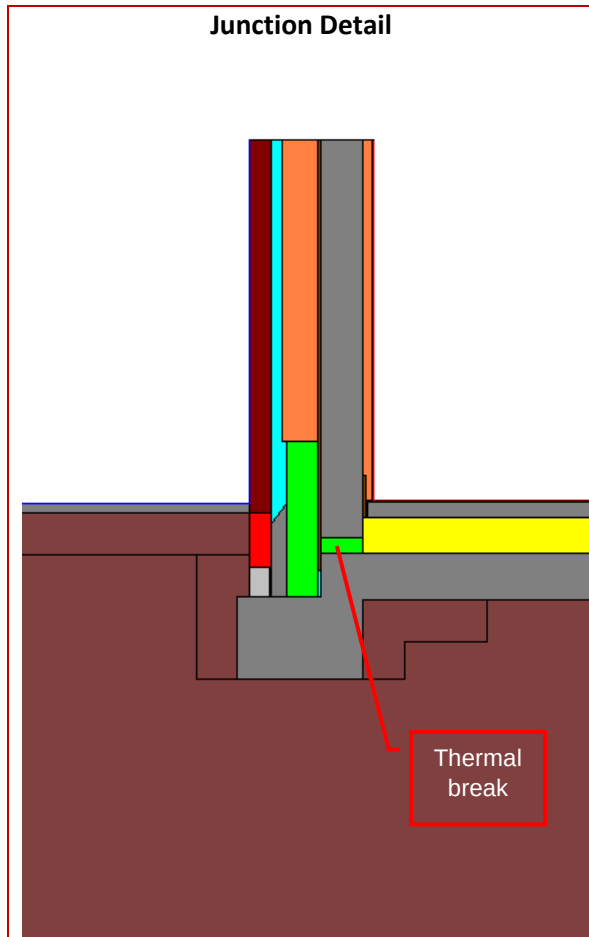


Linear Thermal Transmittance Ψ -Value
0.29 W/mK



Temperature Factor (fRsi)
0.85

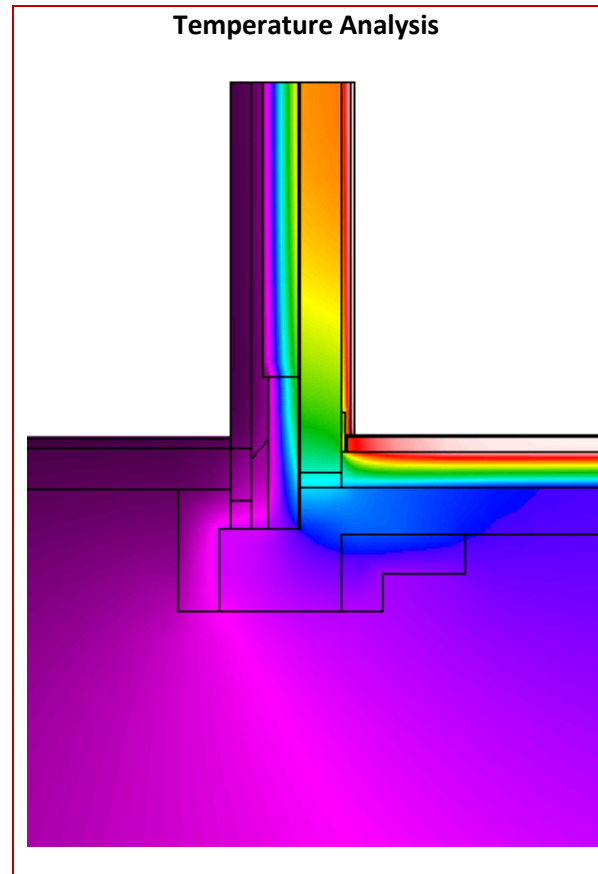
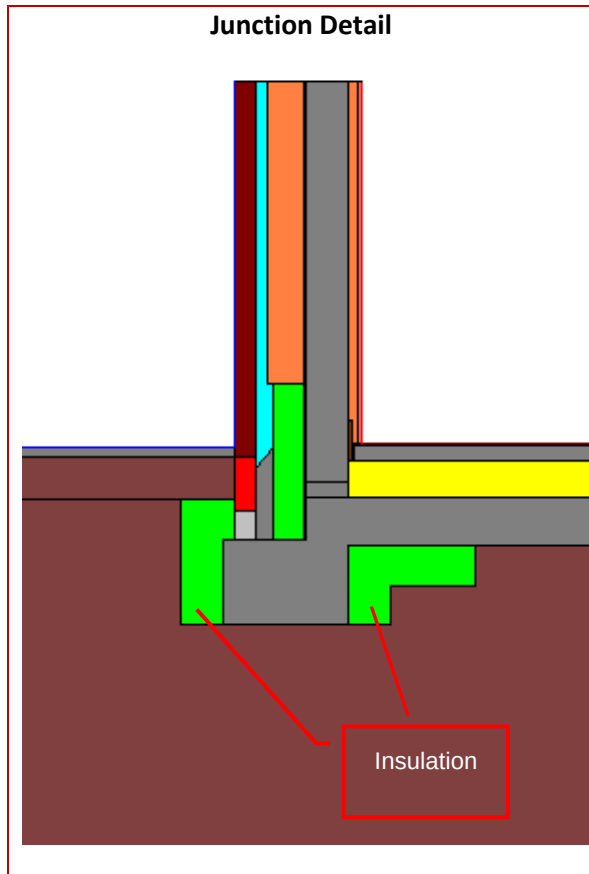
Project	Ashley Road
PRP Reference	BP10456
Document Scope	Linear Thermal Transmittance and Temperature Factor
Detail	Option 1 Wall to Floor - Thermal Break



Linear Thermal Transmittance Ψ -Value
0.16 W/mK

Temperature Factor (fRsi)
0.91

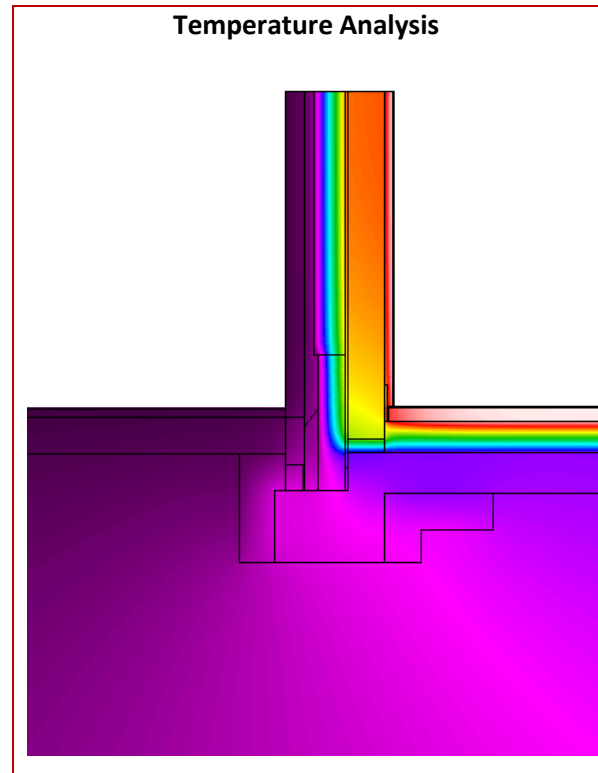
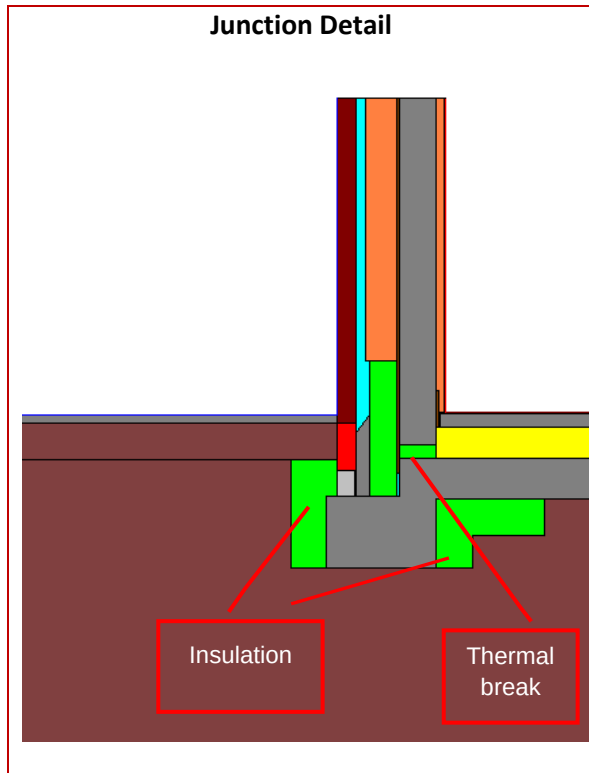
Project	Ashley Road
PRP Reference	BP10456
Document Scope	Linear Thermal Transmittance and Temperature Factor
Detail	Option 2 Wall to Floor – External Insulation



Linear Thermal Transmittance Ψ -Value
0.26 W/mK

Temperature Factor (fRsi)
0.86

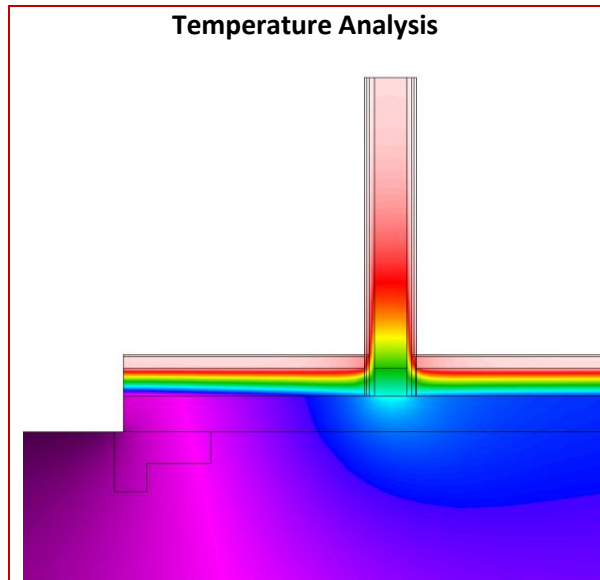
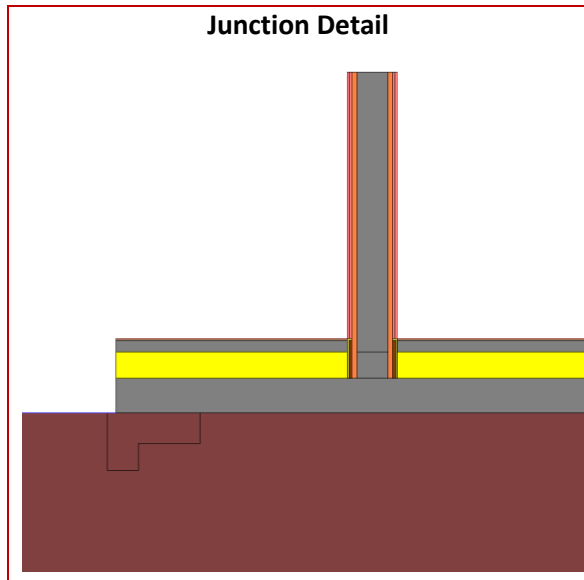
Project	Ashley Road
PRP Reference	BP10456
Document Scope	Linear Thermal Transmittance and Temperature Factor
Detail	Option 3 Wall to Floor – Thermal Break and External Insulation



Linear Thermal Transmittance Ψ -Value
0.15 W/mK

Temperature Factor (f_{Rsi})
0.91

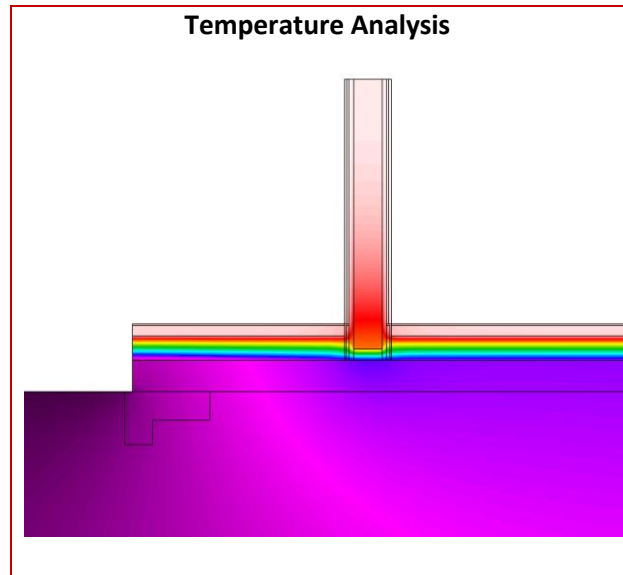
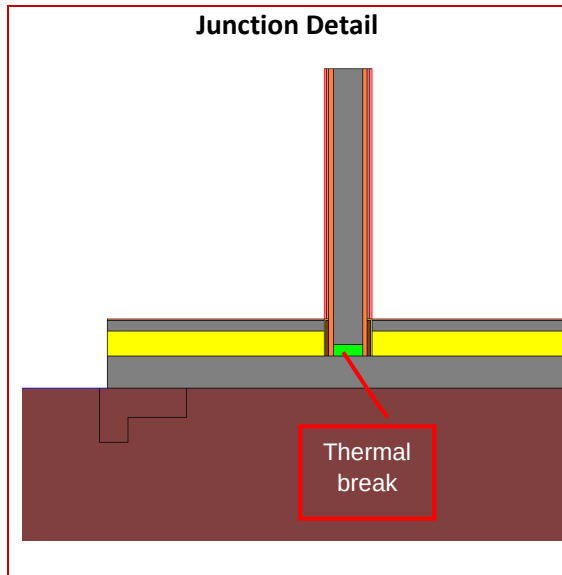
Project	Ashley Road
PRP Reference	BP10456
Document Scope	Linear Thermal Transmittance and Temperature Factor
Detail	Counterfactual Party Wall to Floor



Linear Thermal Transmittance Ψ -Value
0.31 W/mK

Temperature Factor (fRsi)
0.95

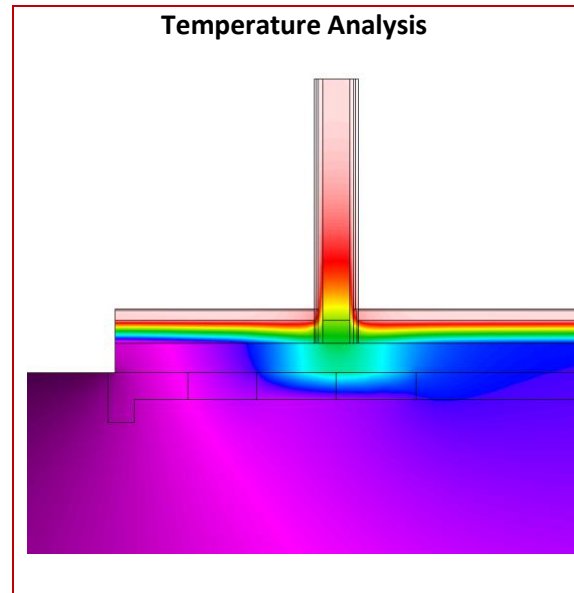
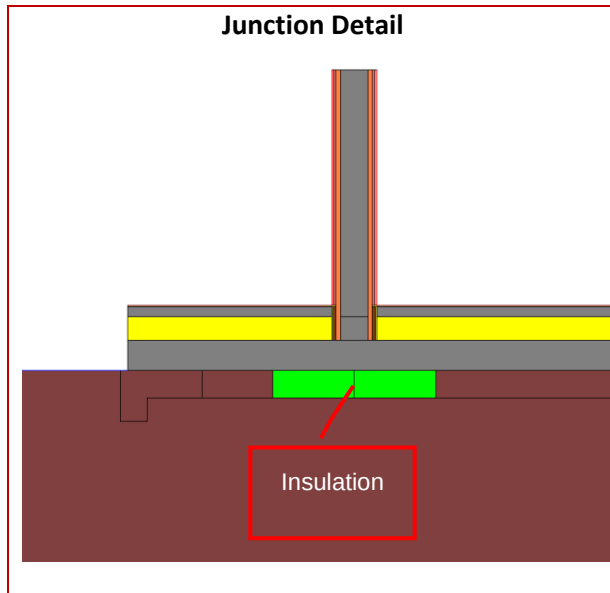
Project	Ashley Road
PRP Reference	BP10456
Document Scope	Linear Thermal Transmittance and Temperature Factor
Detail	Option 1 Party Wall to Floor - Thermal Break



Linear Thermal Transmittance Ψ -Value
0.12 W/mK

Temperature Factor (fRsi)
0.98

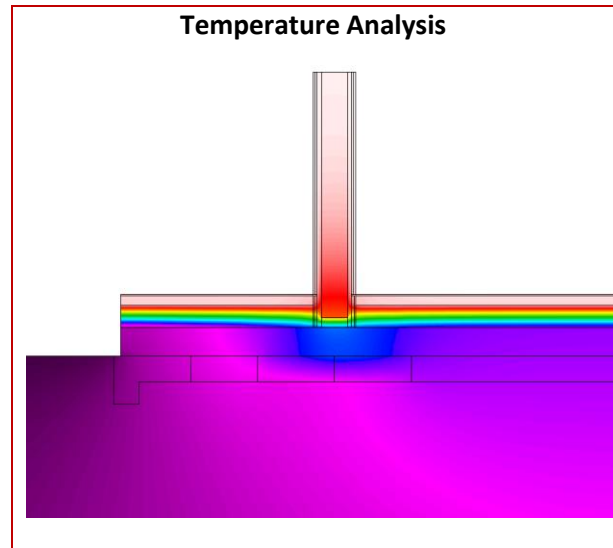
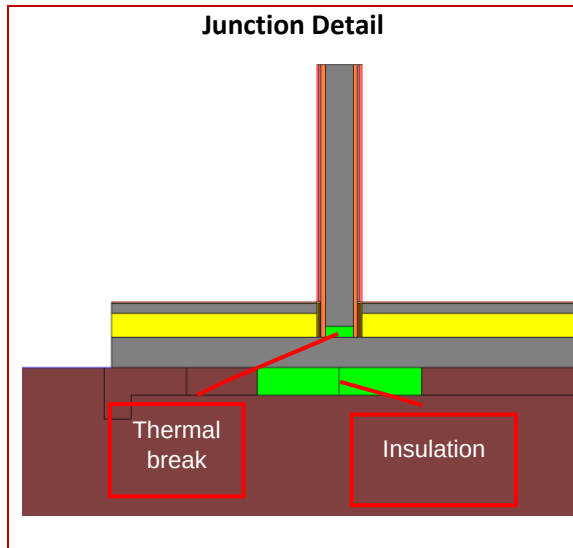
Project	Ashley Road
PRP Reference	BP10456
Document Scope	Linear Thermal Transmittance and Temperature Factor
Detail	Option 2 Party Wall to Floor – External Insulation



Linear Thermal Transmittance Ψ -Value
0.24 W/mK

Temperature Factor (fRsi)
0.96

Project	Ashley Road
PRP Reference	BP10456
Document Scope	Linear Thermal Transmittance and Temperature Factor
Detail	Option 2 Party Wall to Floor – Thermal Break and External Insulation



Linear Thermal Transmittance Ψ -Value
0.09 W/mK

Temperature Factor (fRsi)
0.98