

Discharge of Conditions The Steddles, Yapton

Condition: 9

Planning ref Y/158/21/PL

Date: 9 March 2022



Introduction

Condition 9 under planning ref Y/158/21/PL requires;

'At least 10% of the energy supply of the development shall be secured from decentralised and renewable or low carbon energy sources (as described in the glossary at Annex 2 of the NPPF) unless it can be demonstrated that a fabric-first approach would achieve an equivalent energy saving. Details and a timetable of how this is to be achieved for each phase or sub phase of development, including details of physical works on site, shall be submitted to and approved in writing by the Local Planning Authority before any development in that phase or sub phase begins. The development shall be implemented in accordance with the approved details and timetable and retained as operational thereafter'

Pallant Homes appointed thermal consultants:

NRG Consulting
Unit 219, Pill Box,
115 Coventry Road, London
E2 6GG



Edward Van der Wee

From: Neil Rothon [REDACTED]
Sent: 13 October 2021 16:33
To: Edward Van der Wee; Chris Purdy (MHA)
Subject: S1825 - The Steddles - SAP Report
Attachments: The Steddles - Part L Report - Oct 2021.pdf; Block_Compliance.pdf; CBA TB Details - Steddles.zip

Hi Chris, Edward,

We have now completed the initial SAP calculations for the proposed new dwellings at The Steddles. The calculations have been undertaken using the supplied drawings and specification, and assessed under Part L1A of the 2016 Building Regulations.

Please find attached our SAP Reports for review and comment. We have followed the initial specification we discussed. If any details need to change, please let me know.

The development reaches the required 10% CO2 reduction. Attached is a multiple compliance SAP worksheet confirming this.

Once the full construction drawings are complete, if we can have a copy of these please double check our calculations and specifications.

Please let me know if you need anything else.

KInd regards

Neil

Neil Rothon

NRG Consulting

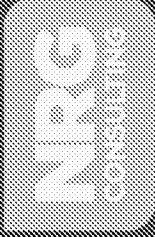
www.nrgconsulting.com



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The Steddles, Yapton

Initial Specification and SAP Report

Part L1A of The Building Regulations (2013)

Job No	S1826
Revision	-
Issue Purpose	For Initial Comment
Assessor	Ed Coate
Approved By	Neli Rothon
Date of Issue	08/10/2021

Disclaimer

This Report is based on information provided by third parties except for any assumptions made to gain compliance

NRG Consulting cannot be held liable for any information contained in this Report that was provided by a third party. All information within this Report is information input specifically to allow the calculator to achieve compliance. There are further default inputs that are not contained within this report

TABLE - PART L SPECIFICATION - FABRIC

ELEMENT	U-VALUES (W/m ² K)	SPECIFICATION NOTES	INFORMATION SOURCE/REFERENCE
Ground Floor	0.11 W/m ² K	U-value calculated for each type using perimeter to area ratio 150mm PIR with a conductivity of 0.022 W/mk	Proposed U-Value to be met.
External Wall	0.15 W/m ² K	100mm Kingspan K108 to 150mm cavity	Proposed U-Value to be met.
Party Walls	0 W/m ² K	To be fully filled and sealed - no air cavity	
Roof (insulated at flat ceiling)	0.10 W/m ² K	400mm mineral wool between and over joists	Proposed U-Value to be met.
Windows	1.3 W/m ² K	Manufacturer to be made aware. U-Value for whole window (frame and glazing)	
Air Permeability	3 m ³ /hm ² @50Pa	All Plots to be Tested	
Thermal Bridging		CBA details to be followed - see separate worksheets. To be supplied to site, completed and signed copies required at conclusion of build.	

TABLE - PART L SPECIFICATION - BUILDING SERVICES

ELEMENT	PROPOSED DETAILS	FURTHER INFORMATION	INFORMATION SOURCE
Ventilation	System 1 - Natural	Intermittent extract fans and trickle vents	
Heating - Houses	Mains Gas Boiler	Combi Boiler to be a minimum of 89.5% efficient	Please inform NRG of proposed boiler details before purchasing so we can check efficiency in SAP as this is a major contributor to the 10% reduction
Heating Controls	Time and Temp Zone Control	Properties to be split into two heating zones, each with their own independent programmer and thermostat controls	NRG requirement to contribute to the 10% CO2 reduction
Heat Emitters	Radiators		
Domestic Hot Water	From boiler		
Lighting	100% Low Energy		Compliance

Plot Identification	DER < 1ER	DPEE < TPEE	Passes Part L	EPC Rating
Plot 1	10.73%	28.37%	Yes	84 (B)
Plot 2	12.42%	30.09%	Yes	85 (B)
Plot 3	12.46%	30.14%	Yes	85 (B)
Plot 4	11.61%	29.52%	Yes	84 (B)
Plot 5	10.08%	26.05%	Yes	84 (B)
Plot 6	9.75%	25.60%	Yes	83 (B)
Plot 7	10.75%	28.36%	Yes	84 (B)

Plot Identification	DER < 1ER	DPEE < TPEE	Passes Part L	EPC Rating
Plot 8	11.72%	29.15%	Yes	85 (B)
Plot 9	12.34%	29.12%	Yes	86 (B)
Plot 10	12.42%	29.07%	Yes	86 (B)
Plot 11	11.78%	29.37%	Yes	84 (B)

TABLE - PART L SPECIFICATION - RESULTS

BLOCK COMPLIANCE

Calculation Type: New Build (As Designed)

Design SAP
elmhurst energy

Block Reference	Steddles	Issued on Date	13/10/2021
Block Name	Whole Site		
Assessor Details	Mr. Neil Rothon, Neil Rothon	Assessor ID	L759-0001
Client			

Block Compliance Report - DER

Block Reference: Steddles		Block Name: Whole Site			
Property-Assessment Reference	Multiplier	Floor Area (m ²)	DER (kgCO ₂ /m ²)	TER (kgCO ₂ /m ²)	% DER/TER
Plot 1-001	1	94.6	17.20	19.20	10.42 %
Plot 7-001	1	94.6	17.10	19.09	10.44 %
Plot 4-001	1	93.8	16.79	18.92	11.24 %
Plot 11-001	1	93.8	16.70	18.86	11.46 %
Plot 2-001	1	103	15.78	17.94	12.03 %
Plot 3-001	1	100.6	16.01	18.21	12.07 %
Plot 8-001	1	100.6	16.53	18.66	11.40 %
Plot 9-001	1	144.9	14.11	16.05	12.09 %
Plot 10-001	1	144.9	14.04	15.97	12.11 %
Plot 5-001	1	71	18.14	20.09	9.73 %
Plot 6-001	1	71	18.44	20.36	9.41 %
Totals:	11	1112.8	180.84	203.35	
Average DER = 16.14 kgCO ₂ /m ²		% DER/TER	PASS		
Average TER = 18.18 kgCO ₂ /m ²		11.22 %			

Block Compliance Report - DFEE

Block Reference: Steddles		Block Name: Whole Site			
Property-Assessment Reference	Multiplier	Floor Area (m ²)	DFEE (kWh/m ² /yr)	TFEE (kWh/m ² /yr)	% DFEE/TFEE
Plot 1-001	1	94.6	44.00	61.04	27.93 %
Plot 7-001	1	94.6	43.66	60.56	27.91 %
Plot 4-001	1	93.8	42.18	59.46	29.06 %
Plot 11-001	1	93.8	42.45	59.73	28.92 %
Plot 2-001	1	103	38.56	54.78	29.61 %
Plot 3-001	1	100.6	39.15	55.63	29.62 %
Plot 8-001	1	100.6	41.32	57.91	28.65 %
Plot 9-001	1	144.9	38.58	54.14	28.74 %
Plot 10-001	1	144.9	38.40	53.86	28.70 %
Plot 5-001	1	71	43.70	58.72	25.59 %
Plot 6-001	1	71	44.93	60.02	25.14 %
Totals:	11	1112.8	456.93	635.85	
Average DFEE = 41.11 kWh/m ² /yr		% DFEE/TFEE	PASS		
Average TFEE = 57.36 kWh/m ² /yr		28.33 %			

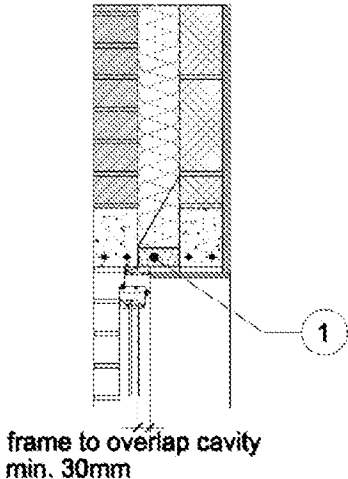
	Linear Thermal Transmittance (ψ-value) Temperature Factor (f-value)	
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Certificate No: CBA-313	Issued : August 2014
Issued by Concrete Block Association	

Independent concrete lintels Table K.1 Ref E2 Approved ψ -value = 0.30 W/mK	Inner leaf	100 mm Blockwork
	Cavity	Full fill insulation, see table for options
	Outer leaf	102 mm Brick $\lambda = 0.77$
	Lintel	Independent concrete lintels with soffit insulation

Key Points

- ① Close the cavity with insulation
 $\lambda \leq 0.026$
- ② Fill gaps around and between lintels with tightly packed insulation



frame to overlap cavity
min. 30mm

Calculations have been performed in accordance with:
 BS EN ISO 10211:2007, BR497 and BS EN ISO 13370:2007

Calculation prepared by: Chris Sanders B.Sc, M.Sc, GCU, Cowcaddens Rd, Glasgow G4 0BA.
 [Redacted Signature]

Calculated ψ -values and f-values for different blockwork, and cavity insulation as highlighted

	Inner leaf blockwork					
	Ultra lightweight		Lightweight		Dense	
Cavity Insulation ↓	ψ -value W/mK	f-value	ψ -value W/mK	f-value	ψ -value W/mK	f-value
100mm $\lambda=0.037$	0.028	0.908	0.023	0.908	0.021	0.908
100mm $\lambda=0.032$	0.028	0.908	0.024	0.908	0.021	0.908
150mm $\lambda=0.037$	0.020	0.870	0.018	0.870	0.017	0.870
150mm $\lambda=0.032$	0.021	0.871	0.019	0.871	0.018	0.871

The f-value should be above 0.75 to minimise the risk of mould in dwellings.

NOTE: Because heat loss through windows and their frames is assessed separately, heat loss through the frame is not taken into account in the calculation of the ψ -value and f-value.

On-site Checklist

- Cavity closed with insulation with $\lambda \leq 0.026$ ☐
- All gaps around and between lintels filled with tightly packed insulation ☐

Site manager/supervisor.....

Site name.....

Plot number.....

Date.....

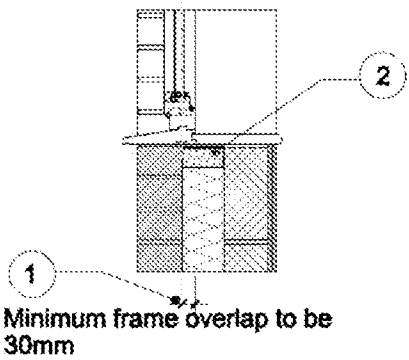
	Linear Thermal Transmittance (ψ-value) Temperature Factor (f-value)	
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Certificate No: CBA-314	Issued : August 2014
Issued by Concrete Block Association	

Window sill Table K.1 Ref E3 Approved ψ -value = 0.04 W/mK	Inner leaf	100 mm Blockwork
	Cavity	Full fill insulation, see table for options
	Outer leaf	102 mm Brick $\lambda = 0.77$

Key Points

- 1 Minimum frame overlap to be 30mm.
- 2 Close the cavity with insulation with $\lambda \leq 0.026$



Minimum frame overlap to be 30mm

Calculations have been performed in accordance with:
 BS EN ISO 10211:2007, BR497 and BS EN ISO 13370:2007

Calculation prepared by: Chris Sanders B.Sc, M.Sc, GCU, Cowcaddens Rd, Glasgow G4 0BA.



Calculated ψ -values and f-values for window sill detail, and cavity insulation as highlighted

	Inner leaf blockwork					
	Ultra lightweight		Lightweight		Dense	
Cavity Insulation ↓	ψ -value W/mK	f-value	ψ -value W/mK	f-value	ψ -value W/mK	f-value
100mm $\lambda=0.037$	0.015	0.895	0.013	0.896	0.013	0.896
100mm $\lambda=0.032$	0.016	0.896	0.015	0.897	0.015	0.897
150mm $\lambda=0.037$	0.021	0.890	0.019	0.890	0.020	0.891
150mm $\lambda=0.032$	0.021	0.891	0.020	0.891	0.021	0.891

The f-value should be above 0.75 to minimise the risk of mould in dwellings.

NOTE: Because heat loss through windows and their frames is assessed separately, heat loss through the frame is not taken into account in the calculation of the ψ -value and f-value.

On-site Checklist

- Frame overlap at least 30mm ☐
- Cavity closed with insulation with $\lambda \leq 0.026$ ☐

Site manager/supervisor.....

Site name.....

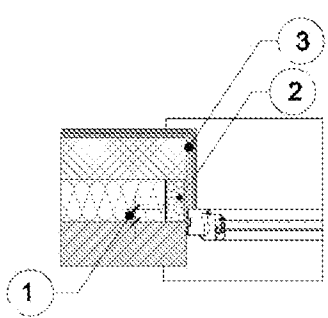
Plot number.....

Date.....

	Linear Thermal Transmittance (ψ-value) Temperature Factor (f-value)	
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Certificate No: CBA-315	Issued : August 2014
Issued by Concrete Block Association	

Window Jamb Table K.1 Ref E4 Approved ψ -value = 0.05 W/mK	Inner leaf	100 mm blockwork
	Cavity	Full fill insulation, see table for options
	Outer leaf	102 mm Brick $\lambda = 0.77$

Key Points 1 Minimum frame overlap to be 30mm. 2 Close the cavity with insulation with $\lambda \leq 0.026$ 3 Apply insulation with an R-value of at least 0.5 m²K/W to the reveal.	
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Calculations have been performed in accordance with:
 BS EN ISO 10211:2007, BR497 and BS EN ISO 13370:2007

Calculation prepared by: Chris Sanders B.Sc, M.Sc, GCU, Cowcaddens Rd, Glasgow G4 0BA.

Calculated ψ -values and f-values for different blockwork and cavity insulation as highlighted

	Inner leaf blockwork					
	Ultra lightweight		Lightweight		Dense	
Cavity Insulation ↓	ψ -value W/mK	f-value	ψ -value W/mK	f-value	ψ -value W/mK	f-value
100mm $\lambda=0.037$	0.010	0.927	0.009	0.928	0.008	0.928
100mm $\lambda=0.032$	0.011	0.927	0.010	0.928	0.011	0.929
150mm $\lambda=0.037$	0.016	0.922	0.015	0.922	0.015	0.922
150mm $\lambda=0.032$	0.017	0.922	0.016	0.923	0.016	0.923

The f-value should be above 0.75 to minimise the risk of mould in dwellings.

NOTE: Because heat loss through windows and their frames is assessed separately, heat loss through the frame is not taken into account in the calculation of the ψ -value and f-value.

On-site Checklist

- Frame overlap at least 30mm ☐
- Cavity closed with insulation with $\lambda \leq 0.026$ ☐
- Insulation with an R-value of at least 0.5 m²K/W applied to the reveal ☐

Site manager/supervisor.....

Site name.....

Plot number.....

Date.....

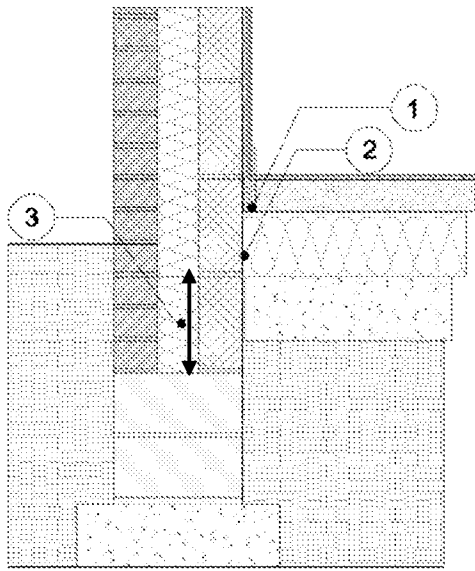
	Linear Thermal Transmittance (ψ-value) Temperature Factor (f-value)	
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Certificate No: CBA- 302	Issued : August 2014
Issued by Concrete Block Association	

Ground Floor, Insulation above slab – External wall Table K.1 Ref E5 Approved ψ -value = 0.16 W/mK	Inner leaf	100 mm blockwork
	Cavity	Full fill insulation, see tables for options
	Outer leaf	102 mm Brick $\lambda = 0.77$
	Floor	100mm slab with 100 mm floor insulation $\lambda = 0.022$ Below a 75mm screed

Key Points

- 1 The R-value of the perimeter insulation should be at least 0.8m²K/W
- 2 Ensure the floor insulation is tightly butted against the external wall.
- 3 Continue the cavity insulation at least 225mm below the top of the concrete.



Calculations have been performed in accordance with:
 BS EN ISO 10211:2007, BR497 and BS EN ISO 13370:2007

Calculation prepared by: Chris Sanders B.Sc, M.Sc, GCU, Cowcaddens Rd, Glasgow G4 0BA.

**Calculated ψ -values and f-values with 100mm floor insulation
 $\lambda=0.022$, and cavity insulation as highlighted**

	Inner leaf blockwork					
	Ultra lightweight		Lightweight		Dense	
Cavity Insulation ↓	ψ -value W/mK	f-value	ψ -value W/mK	f-value	ψ -value W/mK	f-value
100mm $\lambda=0.037$	0.060	0.919	0.097	0.907	0.159	0.884
100mm $\lambda=0.032$	0.059	0.921	0.097	0.911	0.160	0.888
150mm $\lambda=0.037$	0.058	0.925	0.097	0.914	0.162	0.894
150mm $\lambda=0.032$	0.057	0.927	0.097	0.916	0.164	0.897

The f-value should be above 0.75 to minimise the risk of mould in dwellings.

On-site Checklist

- Perimeter insulation with a resistance of at least 0.8 W/m²K installed ☐
- Floor insulation is tightly butted against the external wall ☐
- Cavity insulation continues at least 225mm below the top of the concrete ☐

Site manager/supervisor.....

Site name.....

Plot number.....

Date.....

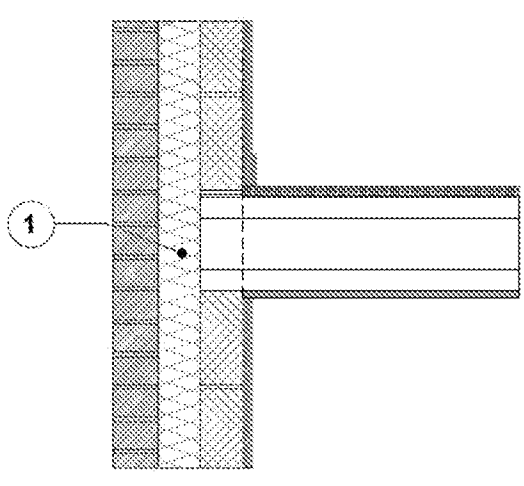
	Linear Thermal Transmittance (ψ-value) Temperature Factor (f-value)	
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Certificate No: CBA-303	Issued : August 2014
Issued by Concrete Block Association	

Intermediate floor within a dwelling – External wall Table K.1 Ref E6 Approved ψ -value = 0.07 W/mK	Inner leaf	100 mm Blockwork
	Cavity	Full fill insulation, see table for options
	Outer leaf	102 mm Brick $\lambda = 0.77$
	Intermediate floor	Timber joists

Key Points

1 Insulation to be continuous across floor abutment zone.



Calculations have been performed in accordance with:
 BS EN ISO 10211:2007, BR497 and BS EN ISO 13370:2007

Calculation prepared by: Chris Sanders B.Sc, M.Sc, GCU, Cowcaddens Rd, Glasgow G4 0BA.
 [Redacted signature]

**Calculated ψ -values and f-values for intermediate timber floors, and
cavity insulation as highlighted**

	Inner leaf blockwork					
	Ultra lightweight		Lightweight		Dense	
Cavity Insulation ↓	ψ -value W/mK	f-value	ψ -value W/mK	f-value	ψ -value W/mK	f-value
100mm $\lambda=0.037$	0.001	0.960	0.000	0.957	0.002	0.954
100mm $\lambda=0.032$	0.000	0.964	0.000	0.962	0.000	0.959
150mm $\lambda=0.037$	0.001	0.971	0.000	0.969	0.000	0.967
150mm $\lambda=0.032$	0.000	0.974	0.000	0.973	0.000	0.971

The f-value should be above 0.75 to minimise the risk of mould in dwellings.

On-site Checklist

- Wall insulation continuous across the floor zone

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Site manager/supervisor.....

Site name.....

Plot number.....

Date.....

	Linear Thermal Transmittance (ψ-value) Temperature Factor (f-value)	
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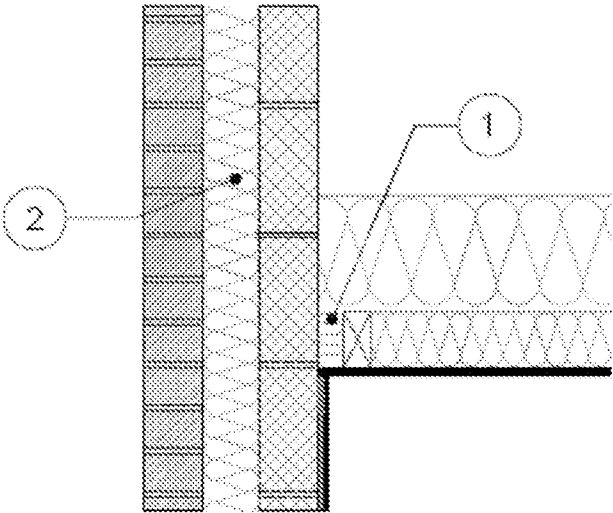
Certificate No: CBA-310	Issued : November 2014
Issued by Concrete Block Association	

Pitched roof gable - ventilated loft Table K.1 Ref E12 Approved ψ -value = 0.24 W/mK	Inner leaf	100 mm Blockwork
	Cavity	Full fill insulation, see table for options
	Outer leaf	102 mm Brick $\lambda = 0.77$
	Roof	400mm of insulation $\lambda = 0.044$

Key Points

① Pack insulation between the final truss and the wall.

② Continue the cavity insulation up at least 200mm above the top of the loft insulation.



Calculations have been performed in accordance with:
 BS EN ISO 10211:2007, BR497 and BS EN ISO 13370:2007

Calculation prepared by: Chris Sanders B.Sc, M.Sc, GCU, Cowcaddens Rd, Glasgow G4 0BA.

Calculated ψ -values and f-values for pitched roof gable / loft junction insulated at ceiling level, and cavity insulation as highlighted

	Inner leaf blockwork					
	Ultra lightweight		Lightweight		Dense	
Cavity Insulation ↓	ψ -value W/mK	f-value	ψ -value W/mK	f-value	ψ -value W/mK	f-value
100mm $\lambda=0.037$	0.058	0.910	0.087	0.897	0.132	0.888
100mm $\lambda=0.032$	0.055	0.915	0.084	0.903	0.127	0.894
150mm $\lambda=0.037$	0.052	0.922	0.080	0.912	0.120	0.904
150mm $\lambda=0.032$	0.050	0.926	0.077	0.916	0.116	0.910

The f-value should be above 0.75 to minimise the risk of mould in dwellings.

On-site Checklist

- Insulation packed between the final truss and the wall ☐
- Cavity insulation continued at least 200mm above the top of the loft insulation ☐

Site manager/supervisor.....

Site name.....

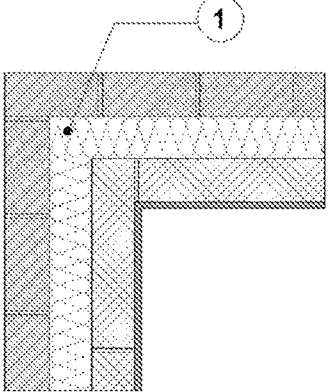
Plot number.....

Date.....

	Linear Thermal Transmittance (ψ-value) Temperature Factor (f-value)	
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Certificate No: CBA-316	Issued : August 2014
Issued by Concrete Block Association	

Normal corner Table K.1 Ref E16 Approved ψ -value = 0.09 W/mK	Inner leaf	100 mm Blockwork
	Cavity	Full fill insulation, see table for options
	Outer leaf	102 mm Brick $\lambda = 0.77$

Key Points 1 Ensure continuity of insulation at the corner.	
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Calculations have been performed in accordance with:
 BS EN ISO 10211:2007, BR497 and BS EN ISO 13370:2007

Calculation prepared by: Chris Sanders B.Sc, M.Sc, GCU, Cowcaddens Rd, Glasgow G4 0BA.
 [Redacted signature]

Calculated ψ -values and f-values for normal corner detail, and cavity insulation as highlighted

	Inner leaf blockwork					
	Ultra lightweight		Lightweight		Dense	
Cavity Insulation ↓	ψ -value W/mK	f-value	ψ -value W/mK	f-value	ψ -value W/mK	f-value
100mm $\lambda=0.037$	0.059	0.904	0.068	0.908	0.074	0.916
100mm $\lambda=0.032$	0.054	0.913	0.062	0.918	0.067	0.925
150mm $\lambda=0.037$	0.051	0.925	0.057	0.931	0.061	0.938
150mm $\lambda=0.032$	0.046	0.933	0.051	0.938	0.054	0.945

The f-value should be above 0.75 to minimise the risk of mould in dwellings.

On-site Checklist

- Continuity of insulation at the corner

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Site manager/supervisor.....

Site name.....

Plot number.....

Date.....