

Thermal Transmittance (U-value) Calculation Report

Calculation performed by Uvaluate,
Produced on 16-Dec-22

Customer: Blue Yonder
Reference: CS1228359-Floor U-Value
Site: To be confirmed
Assessed by: Conor Sheppard, Xtratherm Ltd
Comment: All measurements to be verified on site

Element details

Note: For bridged layers, the 'Layers' table(s) below give the thickness and conductivity of the main material, and the lower resistance.

Solid Ground floor - Xtratherm XT/UF Option 1

Comment: Calculated in accordance with EN ISO 13370:2017
Used in conjunction with Xtratherm Pre-formed Perimeter Strips

Element type	Ground floor, slab-on-ground
Area [m ²]	12
Perimeter [m]	11.94
U-value [W/m² K]	0.18

Wall Construction:
102.5mm matching brickwork, 110mm cavity filled with Xtratherm Cavity therm 360, 105mm cavity batts, 100mm th 7 N/mm² blockwork with ss wall ties at 450mm cs vertically, 750mm cs horizontally and 300mm around all openings and reveals, to give U value of 0.18 w/m² degrees K

50mm th Kingspan K17 with attached 12.5mm plasterboard + scim

wall starters to be either crocodile true line, eternit ss or similar to both leaves where new wall meets existing wall

maintain clear cavity at this location

direction span of 195 x 47 C16 flat roof joists at 400mm cs

50mm kingspan or similar K17 attached to walls with attached 12.5mm plasterboard plus scim

900 x 30 x 5mm once bent lateral restraint straps at not more than 2.0m cs

all design work around opening to lantern light to be designed by structural engineer

New boiler to be installed and fully operational before the issuing of the completion certificate and to have a SEDBUK rating of 92%

Solid Ground floor - Xtratherm XT/UF Option 4

Comment: Calculated in accordance with EN ISO 13370:2017
Used in conjunction with Xtratherm Pre-formed Perimeter Strips

Element type	Ground floor, slab-on-ground
Area [m ²]	11.61
Perimeter [m]	7.79
U-value [W/m² K]	0.18

On-ground insulating layers

Layers	Thickness [mm]	Conductivity [W/m K]	Resistance [m ² K/W]
Concrete	150	1.400	0.107
Separating layer	0	1.000	0.000
Xtratherm XT/UF	100	0.022	4.545
DPM	0	1.000	0.000

CavityTherm 360 U-Values Table

Thickness(mm)	Block Thermal Conductivity	0.13	0.51	0.15	0.11
105 (110mm O/A)	0.17	0.17	0.16	0.15	
120 (125mm O/A)	0.15	0.15	0.14	0.14	
145 (150mm O/A)	0.13	0.12	0.12	0.12	

FF Cavity Wall - Xtratherm ECO360 CT Dense Block & Plasterboard on Dabs

Comment: Calculated in accordance with EN ISO 6946:2017
Xtratherm Pre-formed Corner Panels also available to reduce Thermal Bridging.

Element type	Exposed element
Area [m ²]	1
U-value [W/m² K]	0.17

Layers	Thickness [mm]	Conductivity [W/m K]	Resistance [m ² K/W]
Internal surface resistance			0.130
Plasterboard	13	0.190	0.066
Air layer between Dabs	15		0.096
Dense Concrete Block inner leaf	100	1.130	0.088
Xtratherm ECO360 CT	105	0.020	5.250
Cavity unventilated	5		0.109
Clay brickwork outer leaf	103	0.770	0.134
External surface resistance			0.040
Upper/lower resistance		5.960 / 5.913	W/m ² K
Correction for air gaps / mechanical fasteners			0.000

Details of layers with thermal bridging or corrections for air gaps or mechanical fasteners are given below.

Air layer between Dabs

Is there repeating thermal bridging?	Yes
Bridging conductivity [W/m K]	0.43
Bridging material	Plaster Adhesive
Bridging thickness [mm]	15
Fractional area of bridging [-]	0.2
Correction for air gaps	Not applicable
Correction for mechanical fasteners	Not applicable
Xtratherm ECO360 CT	No
Is there repeating thermal bridging?	Not applicable
Correction for air gaps	Not applicable
Correction for mechanical fasteners	Wall ties between masonry leaves
Fastener conductivity [W/m K]	17
Number of fasteners per m ²	2.5
Cross-sectional area of one fastener [mm ²]	13

Disclaimer: Calculations are based on information provided. Details, practices, principals should be verified as to the accuracy and suitability for the purpose of use. Xtratherm shall not be liable for any damages, including any lost profits, lost savings, or other incidental or consequential damages arising out of the use of this report.

Part G water efficiency calculations are to be provided prior to completion.

Whole sale water supply to be provided by the water supply undertaker.

All baths are to be fitted with suitable device to limit the hot water temperature to a maximum of 40 degrees C (Thermostatic mixer valves)

All hot water taps to be installed on the left hand side.

A notice confirming that the hot water system has been properly commissioned, and issued by a person competent to do so, is to be provided on completion.

Windows to bedrooms at ground floor level to be suitable for means of escape.

Sockets and switches to be located between 450 - 1100mm from finished floor level.

Any alteration works or new works to existing heating systems to be carried out by a Gas safety registered installer.

Contractor top provide details of Gas Safety Engineer.
All electrical installation works are to be carried out under a competent persons scheme

The contractor is to check all dimensions before commencing work. He is to ensure that he has received all the necessary information and drawings before commencing work.

Any discrepancies found on site with regards to structural items are to be reported back to the architect.

All contractors must ensure that they calculate the finished floor level to finished floor level from first floor level to second floor level when carrying out works to loft conversions. Ensure that the staircase can be constructed in accordance with current building regulations, including all necessary head rooms required under the regulations.

The architect cannot be held responsible for any discrepancies if the contractor starts work on site prior to the deposit of the full plans drawings under the current building/planning regulations.

If the client or contractor changes the design of the building/extension following the approval of the Town Planning/Building Regulation approval drawings and further information is requested by either the Planning or building regulation department then this will result in an additional fee being charged to the client by the architect.

The architect is unaware at the time of the survey/drawing time that there were any problems with regards to ground conditions. Contractors wishing to start on site prior to full building regulations approval are advised to contact the LAB CO and confirm if there are any structural ground problems of any nature.

The drawings supplied are for building regulations and town planning approval only they are not complete working drawings.

All new doors marked thus are to be FD30 35mm th fire doors onto 13mm rebated frame

Self contained smoke alarm systems should be permanently wired to a separately fused circuit at the distribution board. They may be operated at a low voltage via a mains transformer cable for the power supply to, and interconnection of, self contained smoke alarms need have no special fire survival fitted with battery back up.

Each self contained smoke alarm should be fitted to the ceiling at least 300mm from any wall or light fitting. A central position is preferable. Units designed for wall mounting should be fitted between 150 - 300mm below the ceiling. The method of fixing should comply with the manufacturers instructions. All smoke alarms are to be interconnected between the ground, first and second floor, with battery back up.

RevID	CHD	Change Name	Date
H		2 additional parking spaces shown planning request	11/1/23
G		Window to front elevation reduced in size client request	22/12/22
F		Pitched roof to front elevation removed client request	19/12/22
E		Additional notes added First extension front wall moved back to finish flush with existing house. planning request. pitched roof added client request. All couched red	14/12/22
D		Additional notes added	14/10/22
C		Front on suite turned back into bedroom, Rear Bed turned into bathroom, a suite changed into store, house bath turned into an suite and additional bed space.	3/10/22
B		In suite added to bedroom shower and door to bedroom, toilet and who swapped around bedroom extended at first floor client request	30/9/22
A		Size of extensions reduced client request	29/9/22

Client: Russell

Project: Proposed Single Storey Rear Extension and First Floor Side Extension

Drawing Title: As Proposed

Scale: 1:50 **Date:** 11/01/2023

Drawn By: AR **Rev:** H

Drawing Nr: 2

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