Building Regulation Notes

Client: Walk Ministries

Location:

Field House Farm
Dilhorne Road
Forsbrook
Staffordshire
ST11 9DL

Project:

Conversion of existing attached outbuilding to form additional living accommodation

Ref: 16/503/SPEC

Prepared by Nigel Forrester MCIOB

General Conditions

- The builder/subcontractors to agree with the homeowner prior to commencement of works all conditions of use relating to access onto the site and areas of use within the site.
- Builder/subcontractors to agree with the home owner the appropriate areas of the site for parking of vehicles, storage of plant and materials, siting of waste skips etc.
- The builder/subcontractors to agree with the homeowner prior to commencement of works all conditions of use relating to the use of on-site water, electricity and toilet facilities.
- The builder/subcontractors to agree acceptable working hours/restrictions relating to working hours with the homeowner prior to commencement of works
- The builder/subcontractor to provide all necessary plant and equipment, tools, consumables, temporary works, scaffolding and access equipment necessary to carry out the works unless agreed otherwise with the client.
- The builder/subcontractors to be responsible for all necessary temporary weather protection required to prevent the ingress of water.
- The builder/subcontractors to ensure the existing property remains secure at all times.
- The builder/subcontractors to allow for the removal from site of all debris resulting from the works as it accumulates, for maintaining the site in a clean and tidy condition during the carrying out of the works and for leaving the site clean and tidy upon completion.
- The builder/subcontractors to allow for carrying out all making good to disturbed structures and finishes arising incidental to the carrying out of the works.
- The builder/subcontractors to be responsible for compliance with all statutory health and safety standards and legislation.
- The builder/subcontractors shall have in place and maintain for the duration of the works adequate levels of “Employers Liability” insurance and “Public Liability” insurance and shall provide evidence of same to client upon request.
- The builder is to liaise with the Building Inspector and arrange for all necessary building control site inspections and to obtain a Building Control Completion Certificate on completion of the works and submit to client.

Site Preparation

- Locate all existing services passing through site, provide appropriate protection to services as necessary

Roof Covering – Pitched

- Strip existing Staffordshire Blue Plain clay tiles setting aside for re-use. Retile, making up any deficiency in tile with reclaimed to match existing on 38 x 25mm treated laths fixed with 63mm long galvanized lath nails at 100mm maximum gauge on:
- Traditional type 1F bitumastic felt (due to mitigation measures required under Bat Survey) draped across top of rafters with a 10mm sag.
- Refix ridge and hip tiles, edge bedded in mortar with no visible pointing.
- Verges to be formed with cement fibre undercloaks. Verge tiles to be bedded and carefully pointed with cement mortar (with no mortar rendering on exposed tile edges)

Roof Ventilation – Pitched

- Provide corbel vents suitable for fixing above brick corbelling detail equal to a 10mm deep continuous clear opening complete with integral insect screen.
- Maintain a clear 50mm air gap between the roof insulation and the underside of the roofing felt .

Ceiling Construction – Pitched

- Provide new ceiling joists. Joists to be 200 x 50mm C16 grade timbers fixed at maximum 400mm centres. Joists to bear on new studwork, raising eaves brickwork internally to required ceiling level. or on new heavy duty, galvanised joint hangers chased into brickwork as indicated on drawings.

Roof Insulation

Insulation at horizontal ceiling level

- Incorporate 300mm th fibre glass roof insulation above horizontal ceiling finish comprising a 150mm th layer positioned between the ceiling joists and a second 150mm th layer laid above and at right angles to the ceiling joists.
- Insulation to achieve a U Value of 0.16 W/m2 degree C.
- Maintain a clear 50mm air gap above insulation where insulation abuts roof slope at eaves level.
- Provide vapour barrier to warm side of insulation of either 500 gauge Visqueen or foiled backed plasterboards.
- Finish with 12.5mm th foil backed plaster board and skim finish

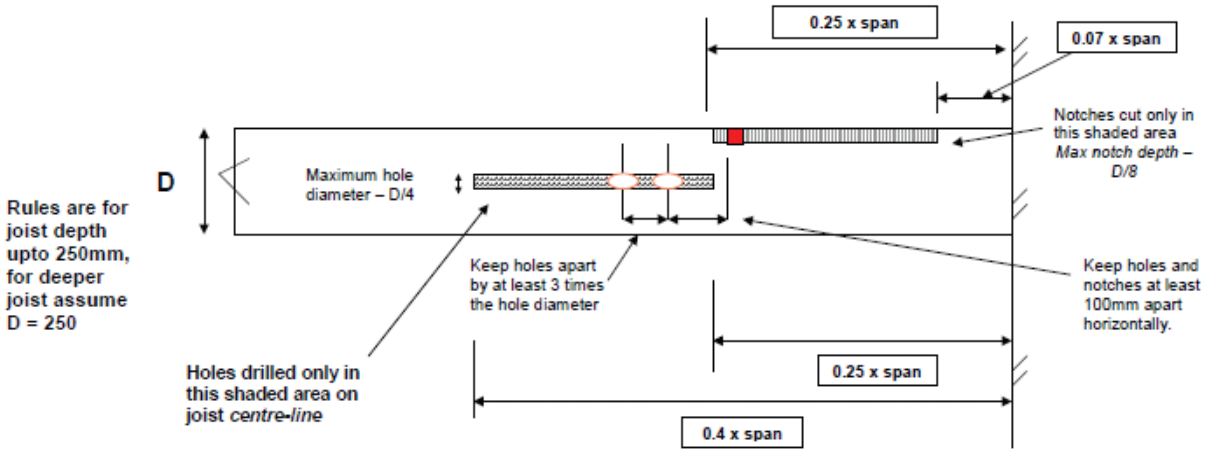
First Floor Construction

- Structural Engineer to confirm adequacy of area of floor comprising 125 x 75mm joists.
- Structural Engineer to detail strengthening of timber beam beneath first floor brick wall.
- Provide new 225 x 75 C24 joists alongside existing joists. Joists to be supported on heavy duty galvanised joist hangers chased into walls.
- 22mm th tongue and grooved chipboard flooring, screw fixed and with all joints glued.
- Joists to be doubled up and nailed together beneath stud partitions.
- Joists to be doubled up and nailed together where trimming out for staircase, all connections between trimmer, trimming and trimmed joists to be by galvanized joist hangers .
- Provide one row of solid blocking or herringbone strutting fixed at mid span.
- Board floor with 25mm th tongue and grooved softwood floor boards.
- Area of floor with 225mm deep joists to be insulated with two, 100mm layers of Earthwool, Dritherm 34 Super insulation acheiving a U Value of 0.22 W/m2 degree C.
- Area of floor with 125mm deep joists to be insulated with a single layer 100mm of Earthwool, Dritherm 34 Super insulation between the joists and underdrawn with insulation backed plaster boards backed with a 50mm thickness of insulation acheiving a U Value of 0.22 W/m2 degree C.
- Underside of floor joists to be finished with two layers of 12.5mm th foil backed plasterboard with plaster skim finish.
- Notches/holes/cuts in structural timbers should be carried out in accordance with BS 5268-22002 and should not be deeper than 0.125 times the depth of the joists and should not be closer to the support than 0.07 times the span and not further away than 0.25 times the span. Holes should have a diameter not greater than 0.25 times the depth of the joist and should be drilled at the joist centre line. They should not be less than 3 diametres (centre to centre) apart and should be located within 0.25 and 0.4 times the span from the support.

NOTCHING AND DRILLING

Notching and drilling of joists should not exceed the limits indicated below:

Note if notches on top of joist are limited to the area between 0.1 and 0.2 of span, the maximum notch depth may be increased to 0.15 x joist depth.



Stud Partitions forming shower rooms etc.

- Stud partition generally to be formed with 100 x 50mm regularized C16 grade timbers fixed at vertical centres to suit plasterboards (450mm) and at approximately 1200mm centrers horizontally
- Where partitions run parallel with floor joists , joists to be doubled up and nailed together beneath sole plate.
- 100 x 50mm timber noggins to be inserted between ceiling joists at 600mm centres at head of partitions to provide structural fixing for head plate.
- Incorporate 18mm th plywood pattresses within studwork where required to support bathroom fittings, radiators etc.
- Partitions to be filled with mineral wool batts or quilt with a minimum density of 10kg/m3.
- Partitions to be clad both sides with 12.5mm th plaster boards with plaster skim finish.

Stud Partitions enclosing stairs.

- Stud partition to be formed with 100 x 50mm regularized C16 grade timbers fixed at vertical centres to suit plasterboards (450mm) and at approximately 1200mm centrers horizontally
- Where partitions runs parallel with floor joists, joists to be doubled up and nailed together beneath sole plate.
- 100 x 50mm timber noggins to be inserted between ceiling joists at 600mm centres at head of partitions to provide structural fixing for head plate.
- Partitions to be filled with Earthwool, Dritherm 34 Super mineral wool batts and boarded one side with insulation backed plaster boards backed with 25mm th urethane insulation.
- Partitions to be finished with plaster skim finish.
- Partition to achieve a U Value of 0.28W/m2 degree C.

Steelwork

- All steelwork and associated detailing including padstones etc to be as details provided by Structural Engineer.
- All steelwork to be factory primed prior to delivery to site.
- Where applicable steelwork to be encased in two layers of 12.5mm th plasterboard with skim finish to provide ½ hour fire protection.

Insulated Dry-lining

- Existing external walls to be dry-lined with Xtratherm XT/TL (MF) 12.5mm plasterboards bonded to 40mm of polyisocyanurate PIR insulation mechanically fixed to 50 x 50mm treated timber battens fixed to walls with non-ferrous screws.
- Incorporate a second layer of 40mm th Xtratherm XT/PR between timber battens.
- Wall to achieve a U Value of 0.28W/m2 degree C.
- 'Tank' reveals around external openings with Synthapruf or similar liquid waterproofing and dryline with plasterboards backed with 25mm thick insulation.
- Finish plasterboards with a skim coat of board finish plaster.

Internal Finishes

- Ceilings generally to be finished with 12.5mm th foil backed plasterboards with skim coat of board finish plaster.
- Stud partitions generally to be finished with 12.5mm th plasterboards with skim coat of board finish plaster.
- Areas of brickwork to be either drylined or plastered with renovating plaster.
- Internal surfaces of external cavity walls to be thermally drylined..
- Superior floor finishes to clients choice.
- All internal joinery e.g. skirtings, architraves, door types, ironmongery etc to clients choice or to match existing.

Shower rooms

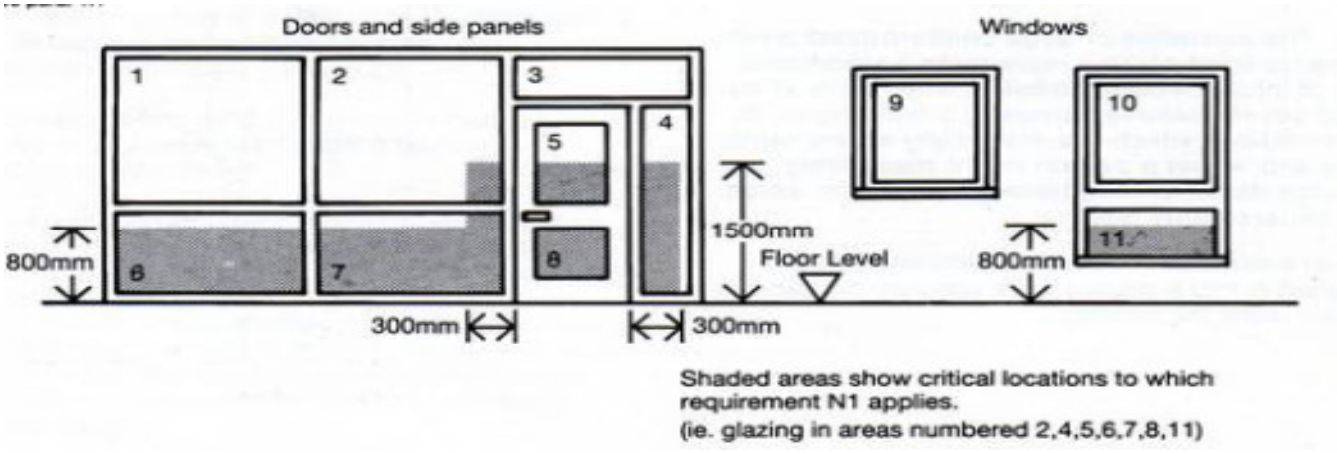
- Floors and walls within shower area to be tanked prior to tiling with proprietary tanking system e.g BAL WP1 shower waterproofing. Comprising BAL APD primer, BAL WP1 polyester corner/joint tape, BAL WP1 polyester matting where necessary and BAL WP1 waterproof coating, all applied in full accordance with manufacturer’s instructions.

Roof Access Hatch

- Provide insulated and draught sealed roof access hatches to all roof spaces.

Windows/External Doors

- Traditional timber windows, double glazed with argon filled sealed units incorporating Low E (K glass) with 20mm "warm edge technology" perimeter spacers, achieving a U Value of 1.6 W/m2 degree C
- Windows to be fully draught proofed and sealed around with silicone mastic, internally and externally.
- Windows to incorporate trickle vents equal to 5000mm sq and have opening casements equal to no less than 1/20th of floor area.
- All first floor windows in habitable rooms to be capable of providing an adequate means of escape in the event of an emergency – minimum opening area to be 0.33m2 with no clear dimension less than 450mm and bottom edge of clear opening not higher than 1100mm above finished floor level.
- Where first floor windows have opening casements at a height of less than 800mm above the finished floor level, the casements are to fitted with opening restrictors with an emergency override facility.
- Glazing to doors and windows in critical locations to be Toughened safety glazing in accordance with BS EN 12150 – See diagram below for critical locations.
- External doors – solid or less than 60% glazing to achieve a U value of 1.80 W/m2 degree C. External doors with an area of glazing in excess of 60% to achieve a U Value of 1.60 W/m2 degree C.



Stairs

- Purpose made flight of stairs comprising 13no equal risers of approximately 210mm and parallel treads of approximately 233mm (subject to site measurements) – should actual site measurements vary from those detailed then the staircase to be subject to the following parameters: maximum individual riser dimension of 220mm, minimum individual going dimension of 220mm, maximum pitch of 42 degrees, the going dimension plus twice the rise dimension must be between 550 and 700mm.
- Handrail following pitch of stairs to be at a height above the pitch line of between 840mm minimum and 1000mm maximum
- Ensure a minimum 2000mm headroom above pitch line of stairs and landing areas.

Ventilation

Background Ventilation

- Trickle vents to be fitted to all windows providing a minimum of 5000mm2 to each habitable room and a minimum of 2500mm2 to each shower room/WC.

Purge (natural) Ventilation - Opening Lights

- Rapid ventilation to be provided via opening windows – windows to have opening casement sizes equal to no less than $1/20^{th}$ (5%) of the room floor area.

Extract Ventilation

- Provide mechanical extract ventilation in accordance with the following:
  in WC, bathroom/shower room equal to 15 litres/sec
- Extractors to be ducted to and terminate at external air.

Mechanical ventilation to rooms without openable windows to be linked to light operation and have 15 minute overrun and a 10mm gap under the door for air supply.

Fans must not be installed in rooms containing open flues unless the interaction of mechanical ventilation and open flue heating appliances is checked and certified by an approved method and suitably qualified person.

Electrical work

The purpose of these notes is not to provide a schedule or specification for the required electrical installation. The Electrical contractor is to liaise directly with the client to agree the specification and to determine a schedule of electrical works. The schedule to include type and number of fittings on a room by room, internal/external basis and to include for any alterations required to the existing installation or supply.

- The design, installation, inspection and testing of the electrical installation will be carried out in accordance with BS 7671:2001.
- Prior to the issue of a completion certificate under the provisions of the Building Regulations the Local Authority must be provided with either: 1) A copy of an Electrical Installation Certificate, issued under the "Competent Persons Scheme" or alternatively, 2) A copy of an Electrical Installation Certificate issued in accordance with BS 7671:2001 by a suitably qualified and competent person.
- Provide low energy light fittings that are only capable of receiving fluorescent tubes and compact fluorescent lamps having a luminous efficacy greater than 40 lumens per circuit watt – 1 energy efficient fitting per 25m2 of dwelling floor area or one fitting for every four fixed light fittings (25%).
- External light fittings to be energy efficient: capable only of receiving fluorescent tubes and compact fluorescent lamps having a luminous efficacy greater than 40 lumens per circuit watt – alternatively provide external lighting that does not exceed 150W fitted with an automatic daylight shut off device.
- All switches and sockets for lighting and other equipment in habitable rooms to be positioned at heights between 450mm and 1200mm off finished floor level.

Fire Detection and Alarm System

- Install a mains operated (with battery backup) interlinked fire detection and alarm system in accordance with BS 5839-6:2004 Grade D Category LD3 standard and BS 5446-1:2003 Fire Detection and Alarm Devices For Dwelling Houses Part 1
- Self contained mains operated smoke detectors/alarms, with battery backup, to be fixed at ceiling level in all circulation areas at each floor level, of the dwelling e.g. in ground floor hallway and on first floor landing. The units to be no more than 7.5m from any door to a habitable room and within 3m of bedroom doors.

Central Heating and Domestic Hot Water

- Extend existing domestic hot water and central heating system to provide for all new domestic hot water requirements and to provide radiators in all new areas.
- The calculated heat output of each radiator shall be such as to maintain an internal temperature of 23 degree C when the external temperature is -3 degree C.
- Zone heating control to be provided by thermostatic radiator valves to each radiator.

Sanitation, Hot Water Safety and Water Efficiency

Plumbing Installation

- Cold Water Supply – A wholesome cold water supply, for the purpose of drinking, must be provided to all washbasins, fixed baths, bidets and showers and to any sink in an area where food is prepared.
- Hot Water Supply – Heated wholesome water to be provided to any washbasin, fixed baths and showers and to sinks in food preparation areas. Where hot and cold taps are provided on a sanitary appliance, the hot tap should be on the left (G 4.6).
- Hot water systems must be designed, constructed and installed to resist the effects of temperature and pressure in both normal use and in the event of any malfunctions that can be reasonably anticipated. Hot water storage vessels must incorporate precautions to prevent the water stored exceeding 100 degrees C and to ensure that the discharge from safety devices is carried away safely. Hot water supply to any fixed bath must be designed and installed so as to incorporate measures to ensure that the temperature of the water delivered to the bath does not exceed 48 degrees C.

Above Ground Drainage

Generally

- Install all pipes, fittings and accessories in accordance with BS 5572 so that appliances drain quickly, quietly and completely at all times and discharge is conveyed without cross flow, back fall, leakage or blockage.
- Provide access fittings and rodding eyes as necessary in convenient locations to permit adequate cleaning and testing of pipework.
- Comply with restrictions on the cutting of holes, chases, notches etc.
- Fully clip and support all pipe runs including those to be concealed. Where not specified otherwise use plated, sheradized, galvanised or non-ferrous fixings, suitable for the purpose and background and compatible with the material being fixed or fixed to.
- Seal around all pipe and service penetrations through external wall fabric to ensure an air tight envelope

WC Soil and Vent Pipes

- All above ground waste and soil drainage shall be of UPVC by Marley Extrusions or equal to comply with BS 5572:1978.
- 110mm diameter soil pipes at a minimum fall of 18mm/m and a maximum fall of 90mm/m for pipework up to 6m in length.
- Vent to be taken up to terminate a minimum of 900mm above roof lights or opening windows and to terminate with “bird cage” fitting.
- Provide Code 4 lead sleeve flashing where vent pipe passes through roof covering.
- Stub stacks where included to be fitted with certified Air Admittance Valves. Valves to be fitted in a vertical position above the flood level of the highest sanitary appliance. Fit the manufactures’ insulating cover in unheated locations and locate within non-habitable space e.g. duct or roof space.

Washbasins, Sinks, Baths and Shower wastes

- 32mm diameter pipes to be fixed at a minimum fall of 18mm/m for pipe runs not exceeding 1.7m.
- 40mm diameter pipes to be fixed at a minimum fall of 18mm/m for pipe runs not exceeding 3.0m.
- 50mm diameter pipes to be fixed at a minimum fall of 18mm/m for pipe runs not exceeding 4.0m.

Traps

- Wash hand basins and sinks to be provided with 76mm deep seal traps
- Baths to be fitted with shallow anti-siphon traps with integral cleaning eye.

Rain Water Goods

- 100mm UPVC guttering to match existing fixed to suitable falls, supported on either galvanised rise and fall brackets.
- 63mm diameter rain water pipes in positions shown discharging over trapped access gullies. Rainwater pipe brackets to be screw fixed with brass round head screws.

U-VALUE CALCULATOR REPORT

Design SAP
elmhurst energy

Property Reference	Field Farm 1st floor 3	Issued on Date	26/10/2017
Survey Reference		Prop Type Ref	
Project			
Calculation Type	New Build (As Built)		

SAP Rating		DER		TER	
Environmental		% DER<TER			
CO_2 Emissions (t/year)		DFEE		TFEE	
General Requirements Compliance		% DFEE<TFEE			

Surveyor	Nigel Forrester, Tel: 01538702164	Surveyor ID	A228-0001
Client			

Building Elements

Floor 000001

Floor Type: Exposed Floor

Layer	Description	Thickness (mm)	Conductivity (W/m²K)	Resistance (m²K/W)	Fraction (%)
Ext surface				0.0400	
Layer 1	Plaster, standard				
	Main construction	3	0.4000	0.0075	100.00
Layer 2	Gyproc Wallboard (12.5mm)				
	Main construction	12.5	0.1900	0.0658	100.00
	Corrections - Air Gap: Level 1, Fasteners: None or plastic				
Layer 3	Thermaline Super (50mm)				
	Main construction	50	0.0254	1.9700	100.00
	Corrections - Air Gap: Level 1, Fasteners: None or plastic				
Layer 4	Earthwool Dritherm 34 Super				
	Main construction	100	0.0340	2.9412	81.25
	Main construction	100	0.1300	0.7692	18.75
	Corrections - Air Gap: Level 1, Fasteners: None or plastic				
Layer 5	Softwood, dry				
	Main construction	25	0.1300	0.1923	100.00
Int surface				0.1700	

Total resistance: Upper limit = 4.781 m² K/W Lower limit = 4.369 m² K/W Average = 4.575 m² K/W

Total correction = 0.0036 m² K/W U-value (unrounded) = 0.22 W/m² K

Unheated space: None

Total thickness: 191 mm U-value: 0.22 W/m² K Kappa: n/a

U-VALUE CALCULATOR REPORT

Design SAP
elmhurst energy

Property Reference	Field Farm 1st floor 2	Issued on Date	26/10/2017
Survey Reference		Prop Type Ref	
Project			
Calculation Type	New Build (As Built)		

SAP Rating		DER		TER	
Environmental		% DER<TER			
CO_2 Emissions (t/year)		DFEE		TFEE	
General Requirements Compliance		% DFEE<TFEE			

Surveyor	Nigel Forrester, Tel: 01538702164	Surveyor ID	A228-0001
Client			

Building Elements

Floor 000001

Floor Type: Exposed Floor

Layer	Description	Thickness (mm)	Conductivity (W/m²K)	Resistance (m²K/W)	Fraction (%)
Ext surface				0.0400	
Layer 1	Plaster, standard				
	Main construction	3	0.4000	0.0075	100.00
Layer 2	Gyproc Wallboard (12.5mm)				
	Main construction	12.5	0.1900	0.0658	100.00
	Corrections - Air Gap: Level 1, Fasteners: None or plastic				
Layer 3	Gyproc Wallboard (12.5mm)				
	Main construction	12.5	0.1900	0.0658	100.00
	Corrections - Air Gap: Level 1, Fasteners: None or plastic				
Layer 4	Earthwool Dritherm 34 Super				
	Main construction	100	0.0340	2.9412	81.25
	Main construction	100	0.1300	0.7692	18.75
	Corrections - Air Gap: Level 1, Fasteners: None or plastic				
Layer 5	Earthwool Dritherm 34 Super				
	Main construction	100	0.0340	2.9412	81.25
	Main construction	100	0.1300	0.7692	18.75
	Corrections - Air Gap: Level 1, Fasteners: None or plastic				
Layer 6	Softwood, dry				
	Main construction	25	0.1300	0.1923	100.00
Int surface				0.1700	

Total resistance: Upper limit = 5.227 m² K/W Lower limit = 4.388 m² K/W Average = 4.807 m² K/W

Total correction = 0.0032 m² K/W U-value (unrounded) = 0.21 W/m² K

Unheated space: None

Total thickness: 253 mm U-value: 0.21 W/m² K Kappa: n/a

U-VALUE CALCULATOR REPORT

Design SAP
elmhurst energy

Property Reference	Field Farm Insulated Studwork	Issued on Date	26/10/2017
Survey Reference		Prop Type Ref	
Project			
Calculation Type	New Build (As Designed)		

SAP Rating		DER		TER	
Environmental		% DER<TER			
CO_2 Emissions (t/year)		DFEE		TFEE	
General Requirements Compliance		% DFEE<TFEE			

Surveyor	Nigel Forrester, Tel: 01538702164	Surveyor ID	A228-0001
Client			

Building Elements

Wall 000001 - Timber framed insulation between studs

Wall Type: Standard Wall

Layer	Description	Thickness (mm)	Conductivity (W/m²K)	Resistance (m²K/W)	Fraction (%)
Ext surface				0.0400	
Layer 1	Plaster, standard				
	Main construction	3	0.4000	0.0075	100.00
Layer 2	Gyproc Wallboard (12.5mm)				
	Main construction	12.5	0.1900	0.0658	100.00
	Corrections - Air Gap: Level 1, Fasteners: None or plastic				
Layer 3	Earthwool Dritherm 34 Super				
	Main construction	100	0.0340	2.9412	88.89
	Main construction	100	0.1300	0.7692	11.11
	Corrections - Air Gap: Level 1, Fasteners: None or plastic				
Layer 4	Thin-R Thermal liner XT/TL				
	Main construction	25	0.0220	1.1364	100.00
	Corrections - Air Gap: Level 1, Fasteners: None or plastic				
Layer 5	Plaster, standard				
	Main construction	3	0.4000	0.0075	100.00
Int surface				0.1300	

Total resistance: Upper limit = 3.893 m² K/W Lower limit = 3.626 m² K/W Average = 3.759 m² K/W

Total correction = 0.0045 m² K/W U-value (unrounded) = 0.27 W/m² K

Unheated space: None

Total thickness: 144 mm U-value: 0.27 W/m² K Kappa: n/a