REINCO

Renewables & insulation Consultancy

Renewable Energies and Insulation Report

for

Anne-Marie & Ken McCullagh
Dundrum, Dublin

Architect / Builders Report

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Prepared by
Eric Davidson

11 Westland Road, Cookstown BT80 8BX Tel 0772 912 5002

e-mail eric@reinco.co.uk web www.reinco.co.uk

Ground Floor

On top of subfloor install 1000g polythene. Then install 125mm foil backed polyurethane (Kingspan or equivalent). Normally 2 layers of Kingspan (75mm + 50mm) or equivalent – stagger all joints.

With first fix plumbing pipes 3 layers, 50mm Kingspan under first fix pipes, 50mm around first fix pipes, 25mm Kingpsan over first fix pipes. Separate first fix pipes with 75mm insulation. Stagger joints where possible.
See drawing

First Floor – Slabs

50mm KS insulation. 75mm concrete screed. Seal any hollow cores in slab which terminate inside the house e.g. at stairwell, by inserting a brick and sealing with mortar.

Screed for UFH

35N concrete 100mm deep laid as a wet mix with a brush finish (not power float!!). Include a plasticizer e.g. Sika Viscocrete 1060.

Use a laser level to set 25mm Kingspan insulation around all the walls as the guide for concrete level. Install a second layer of polythene under the UFH pipes. This should be 500 gauge.

A sub contractor who has done concrete screeds successfully:-
Noel Corey, 077 7569 7633

Foil backed polyurethane insulation boards are available as Kingspan, Quinntherm, Xtratherm and Celotex – buy on price.

Wall Structure 200mm cavity

The wall structure is 100mm outer block, 200mm cavity, 100mm block inner skin. Use 150mm strips of 75mm thick Kingspan as cavity closure at the side of the window and door frames.

Use one row of Quinnlite B5 blocks opposite the floor insulation and floor screed on the ground floor in order to reduce cold bridging. The Quinnlites are required on the inner skin of the cavity wall and on all internal walls.

Walls must be plastered right down to the junction of the floor in order to maintain airtightness. For junction at ceiling see drawing.

Teplo Wall Ties

Teplo type 2, 6mm diameter, 325mm long for a 200mm cavity.

Cavity Closure at top of walls
Fibre cement board.

Insulation of Cavities
Grey beads with glue.

Warm Flat Roof
Install 100mm Kingspan or equivalent on top of the joists. Install 150mm Foamlok spray-in foam between the rafters. Use plasterboard with a foil backing as a vapour barrier.
Possible Installer Lyons Insulation, Greystones.

Warm Sloping Roof
100mm Kingspan type insulation over rafters. Spray 125mm of Foamlok between the rafters. A 40mm Counter Batten will be required

Airtightness
No silicone sealers to be used. Use only Polymer sealers (CT1, Tex7, Stixall, Fix All).

Airtightness – Plumber & Electrician
Conduits which go through the airtight envelope should be closed to prevent air flows. The plumber needs to know to seal any penetration of the airtightness system. Sealing is achieved with approved airtightness tapes or polymer sealer such as CT1 / Tex7.

Airtightness under slabs on external walls
Spray the wall between the metal studding and the bottom of the slab with Foamlok.

Airtightness around Windows and Doors
Completely fill the space between the opening and the frame with expanding foam from the DPC at the outside to the inside. Seal the foam with polymer sealer (CT1, Tex7). Multisolve (a C-Tec product) helps get a good finish.

Airtightness behind Cladding
Plaster before attaching cladding.

Airtightness Target for this house 1m³/hr/m²

Recessed Lights
Cover downlighters which are close to insulation with Thermahoods.

Heat Delivery Systems

100mm space between the pipes in areas with lots of glass, bathroom, en-suite, hallway and all high demand areas.

150mm space between the pipes in all other normal heat demand areas.

UFH pipes should be 16-17mm diameter.

Pipe layout should be laid in "spiral" layout and not in "snake" pattern.

The maximum length of one UFH loop should be 120m.

Electric towel rails in FirstFloor Bathroom/Ensuite with timer switch remotely located.

Dataterm

One Dataterm thermostat / controller on ground floor and one on first floor.

Mechanical Ventilation Heat Recovery

Two possible suppliers / installers -
Beam www.beamcentralsystems.com (028 7963 2424)
Homecare Villavent www.homecaresystems.biz (028 8776 9111)

A 175mm gap should be established between first floor slab and suspended ceiling to facilitate MVHR ducting

Ventilation Openings

The heat recovery ventilation system requires a fresh air in-duct and a stale air out-duct.

The only other ventilation openings are for the kitchen extractor fan, which should utilize an external/remote fan to reduce noise in the kitchen.

Passive Sills

www.passivesills.com

Glass / Windows

Triple glazed. No trickle vents.

Primary Heating System

ASHP

Stove

Balance flue gas stove, subject to the ASHP fulfilling the renewables requirements of Part (L) building regs

I do not take commissions from any company or individual. When I suggest or recommend a company I do so because I have found their service or equipment fully satisfactory in the past. The advice and recommendations are specifically for this project and this set of circumstances.

Eric Davidson
Reinco
Renewables & Insulations Consultancy 0772 912 5002