

Insulation Method Statement

Job No 756
Job Name 33 Harmondsworth Lane, Barn 1
Location Sipson
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This Insulation Method Statement has been prepared to discharge condition 6 of Listed Building Consent approval application ref: 44185-APP-2020-740 for the conversion of existing barn into 2 x 3-bed dwellings.

The original structure of the barn is to be retained because of the building's heritage status. It is therefore proposed to expose the existing structural elements such as timber roof trusses, tie collars, wall structure as well as solid brick external walls.

Below is a summary of how each element shall be sufficiently insulated to meet building regulation requirements whilst maintaining the existing building heritage assets.

General

The proposed insulation and finishes to existing timber frame elements will be breathable to mitigate any issues relating to interstitial condensation and maintain moisture balance. To this end, breathable insulation products will be used, and the internal faces of external walls and ceilings will be finished with a lime plaster and breathable paint finishes. The ground floor will be replaced with a breathable lime-based slab and screed build up, laid on a breathable geotextile or hessian separation layer to provide a breathable ground floor.

Walls

The southwest external wall and other timber walls are comprised of timber columns which support the roof trusses. Between these columns are studs which support the external feathered edge timber cladding. It is proposed to infill 100mm sheep's wool insulation between the existing studs using Thermafleece CosyWool or an approved equivalent. 40mm of wood fibre board such as Limegreen Warmshell tongue & groove profile board or similar will then be fitted to the inner face of the retained/restored studs. Solid brick walls will be internally lined with 120mm wood fibre board insulation fixed to 25mm timber battens. A VCL to the inner face of all insulation will mitigate any moisture passing from the approved dwellings into the walls to protect the existing timber structure from damage.

These build-ups will ensure the external walls meet building regulation performance requirements without concealing the buildings' original structure. It is thought that any thermal break through the original timber frame will be compensated by the proposed insulation.

The existing external wall containing the entrance barn doors will remain unaltered, whilst the solid brick walls of the porch will remain exposed. The porch will remain an external space as the existing barn doors are to remain open to enable access to the proposed dwellings.

A new external wall is proposed in line with the original central barn's external timber frame wall, along which new entrance doors will be located. This new wall is proposed to be a masonry cavity wall, insulated with 90mm partial fill cavity insulation, such as EcoTherm Eco-Cavity or similar and facing brickwork to match the colour of the existing. The wall will be positioned to ensure the existing timber columns and beams remain exposed.

Wood fibre insulation board and lime plaster will be used around internal reveals of all existing and new windows and external doors.

Roof

The existing roof is composed of slate tile on battens fixed to existing timber rafters, with an assumed breather membrane over existing rafters. It is proposed to infill 50mm wood fibre board insulation, such as Limegreen Warmshell tongue & groove profile board or similar, between the existing rafters to leave a minimum 50mm ventilation cavity over insulation. A further 200mm wood fibre board insulation will then line the underside of existing rafters. A

VCL to the inner face of all insulation will mitigate any moisture passing from the approved dwellings into the roofs to protect the existing timber structure from damage.

The proposed build-up ensures the dwellings thermal performance whilst offsetting any heat loss through the existing roof structure. The additional insulation fixed to underside of rafters will also help to thermally insulate proposed rooflights.

Ground Floor

The existing concrete/brick ground floor will be replaced with a 150mm limecrete floor slab, laid on an expanded clay aggregate and breathable geotextile or hessian separation layer. A lime screed floor on top of this slab will provide a basis for a breathable internal floor finish. This build-up will ensure compliance with building regulations whilst maintaining a breathable fabric.