



## DESIGN STATEMENT

for  
PROPOSED NEW HOUSE

at  
Headshaw, Ashkirk

## DESIGN

### Building Form

The proposed house design consists of a single storey structure with 2 clearly defined rectangular elements. The first contains the main living, kitchen, dining and other ancillary areas. The second area contains the bedrooms. Each area is linked by the principal entrance area

### Sustainability, Thermal and Energy Efficiency

The building will be built to achieve very high levels of insulation to walls, floor and roofs which will exceed the requirements of Part 6 of the Building Regulations. Expected U values are 0.1 W/m<sup>2</sup>K at ground floor, 0.13 W/m<sup>2</sup>K to walls and 0.13 W/m<sup>2</sup>K at the roof.

Timber triple glazed windows and doors will have u values averaging less than 1.0W/m<sup>2</sup>K.

Careful detailing will ensure air tightness levels less than 0.6m<sup>3</sup>/m<sup>2</sup> air changes an hour at 50 pascals (current building regulations norm is between 5 and 7m<sup>3</sup>/m<sup>2</sup> air changes an hour at 50 pascals).

Again careful detailing will aim to minimise or eliminate cold bridging at the external envelope. This will include the use of an insulated ground floor slab system which not only achieves high levels of thermal insulation to the floor but also significantly reduces cold bridging at the ground floor to wall junctions (<https://www.isoquick.co.uk>).

The use of PassiveHaus detailing and principals as described above (<http://www.passivhaus.org.uk/>) along with monitoring during construction will ensure the building performs as designed with no "performance gap" often seen in modern buildings.

With the exception of the ground floor insulation all other insulating material will consist of cellulose (<http://www.warmcel.co.uk>), which is manufactured from recycled paper.

All the above ground structure and framing to be constructed using full timber based products. Engineered I joists for external wall framing and roof structure. Glu-Laminated timber beams for large spans/openings and ridge beams. NO concrete or steel beams to be used.

The insulated slab system listed above minimises excavation of the ground and materials used (reduced use of concrete and no clockwork required. This significantly reduced the embodied energy of the construction

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A photovoltaic array of panels will be installed along with a system (<https://www.marlec.co.uk/product/solar-iboost/>) to divert excess energy to be used for hot water, car charging or battery storage.

As the building will be very air tight a mechanical ventilation with heat recovery system minimises losses otherwise lost through mechanical ventilation (extract fans).

### **External Materials and Appearance**

The external appearance of the building draws inspiration from the agricultural and industrial buildings in the area. The aesthetic is unashamedly contemporary.

Roofs shall be finished using standing seam metal sheeting.  
(<https://www.tatasteeleurope.com/construction/key-products/colorcoat-urban>)

Walls are to be clad predominately using vertical timber cladding which will be left to naturally weather to a grey finish. The remaining areas are to be clad in a combination of standing seam metal (to match roofing) and stone to match stone used at original farm buildings nearby

Rainwater pipes and gutters, these shall be Lindab steel powder coated to match colour of wall cladding and windows.

Windows and doors, although timber in construction these shall be aluminium clad and powder coated to provide a long life and maintenance free finish.

Base Course, a simple powder coated base trim will fitted and will match colour of other metal finishes used at the building.

### **SERVICES:**

Mains water is available along side the public road.

Mains Electricity will be taken from the nearby overhead supply serving other nearby properties.

Waste water disposal will be a new private waste water treatment system. This will consist of a packaged treatment unit, partial soakaway and discharge to a nearby water course.

Surface water, will also discharge to the nearby water course.