Taiffordd Fawr,
Furnace,
Ceredigion

The house has a cross-shaped plan, centred around a tw o-storey, cruck framed 'sunspace' – w hich, like a medieval hall, is the main social and circulation space. The plan steps in and out, so that all major rooms get some east and w est view s and sunlight – w ith the help of corner w indow s. The north side, facing a busy road, is faced in a protective natural stone w all (from the derelict cottage that stood here and other local demolitions) that continues either side to form a w alled garden. The south side is open and highly glazed. Every design decision w as informed by the client's desire to use the best environmental practice.

Constructed:	2000 - 2001
Contract:	Management by CAT, Machynlleth
Oak frame:	Carpenter Oak
M&E:	Rob Gw illim, CAT
Solar heating:	Chris Laughton
Sew age adviser:	Nick Grant
Heat pump:	John Cantor

Foundat ions: Hydraulic lime concrete with brick plinth w alls

Ground floor: Limecrete slab w ith under floor heating pipes, on 150mm cork slab insulation. Finished w ith home grow n ash boarding or 25mm slate slabs. U= 0.19 W/m^{2}K.

Walls: Lightw eight spaced stud infill, w ith 200mm sheep's w ool insulation, services zone and plasterboard. External Keim mineral paint on hydraulic lime render on Heraklith w oodw ool slabs. North w all faced in 450mm random rubble w ith lime mortar. U= 0.15 W/m^{2}K.

Roof: Natural second hand slate on spaced rafter cut roof, w ith 300mm Warmcel insulation. U= 0.12 W/m^{2}K.

Ext ernal joinery: Laminated Welsh oak with ash inner face, low -E argon filled glazing.

Internal joinery: Welsh ash doors, stairs and skirtings. Auro organic w ood and w all finishes.

Heating: 8 kW ground source heat pump. 4 square metre solar domestic w ater heating array, integrated w ith the roof finish. 'Intelligent' optimised controls increase the efficiency of fuel use.

Electricity: 2 kW photovoltaic array is integrated into the garage roof. This is grid-linked and provides