

NEWS RELEASE

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From left to right: View of New Extension From Rear Garden; View of Kitchen & Rear Garden Beyond; View of Pergola Sun Shade From Ground Floor Level. Images are to be credited to Freeland Rees Roberts Architects. Reproduction is permitted providing authorship is credited.

VICTORIAN CHARM MEETS MODERN ECO EFFICIENCY – THE TRANSFORMATION OF AN HISTORIC CAMBRIDGE HOME

Award-winning, Cambridge-based Freeland Rees Roberts Architects have announced the completion of a stunning, environmentally-friendly extension and alteration of a traditional Victorian terrace home in Newnham, Cambridge. The extension and alteration of traditional Victorian terraced houses is a common challenge for home-owners and architects in Cambridge and the key requirement for this relatively modest project was the addition of more space and light and, above all, the adoption of an environmentally-friendly approach.

The project, designed by architect Iain Frearson, Associate of Freeland Rees Roberts, was relatively small in scale, but included the rear extension of the property combined with minor internal alterations to provide a re-ordered kitchen and dining area, a new ground floor lavatory (with level-access shower), first floor bathroom, and rear bedroom alterations. The existing rear outbuilding comprised a cramped, dark kitchen with access to an outside lavatory through a greenhouse that was hot in the summer and cold in the winter.

Through close and continuous consultation with the client, a range of ‘green’ ideas were developed to create a positive and comfortable living environment that produces minimal waste and maximum efficiency. Freeland Rees Roberts then sought to source materials and employ

methods that minimise the negative environmental impact of the project as well as the building's day-to-day use.

Mr Frearson commented: "The intention was to make positive, practical, and realistic steps towards an environmentally-friendly solution for our client. The cost of the project compares very favourably with comparable 'conventional' projects for domestic extensions and alterations we undertake, suggesting that such an approach does not have to 'cost the earth'. It is hoped that this project demonstrates that intelligent decisions taken early on in the design process are not only able to integrate environmentally-friendly measures, but provide the basis for an efficient, affordable, and ultimately more comfortable living environment."

Mr Frearson continued: "Instead of choosing very visible, stereotypical options for improving the building's energy efficiency such as photo-voltaic panels, wind turbines, reed-bed sewage treatment and grey-water recycling, we sought to ensure the more basic 'green' measures were adopted first - these less glamorous, more 'passive' green measures often make the biggest difference. Such measures included the strategic design of the building fabric, using insulation, natural lighting and ventilation, good passive solar design and more natural materials. These basic, integrated measures provide a sustainable solution to minimising waste and maximising efficiency - reducing the need for other additional, often costly equipment."

Penny Maddrell, owner of the home in Fulbrooke Road, Cambridge, commented: "I am delighted with my new-look home - the knowledge and expertise provided by Iain and his team have helped transform what was a dark and cramped space into a light and comfortable living space that is a daily delight to be in. The various measures Iain recommended to improve the building's energy efficiency show how a conscientious, detailed and ethical approach to design can result in sustainable and cost-effective construction for modern-day living. Freeland Rees Roberts' experience in the design of homes and extensions, detailed understanding of my needs and regular close consultancy have been invaluable to the success of this project."

PROJECT TEAM:

Architect: Freeland Rees Roberts Architects
Structural Engineer: The Andrew Firebrace Partnership
Contractor: Between Time

Other recent domestic building projects Freeland Rees Roberts Architects have designed include the renovation of a late 1960's Colt timber kit house and two storey extension in Cambridgeshire; 'Uplands' private house in Suffolk (awarded an RIBA East Spirit of Ingenuity

Award in 2006 for a new, individual dwelling) and the design of alterations to a private Victorian house in Cambridge (awarded a David Urwin Commendation in 2006 for 'The Most Efficient & Sustainable Building'). The practice also renovates and refurbishes derelict barns and outbuildings.

For further information about Freeland Rees Roberts Architects, visit www.frrarchitects.co.uk

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Notes to the editor:

1. For high resolution images of this private scheme or other domestic schemes designed by Freeland Rees Roberts, please contact Carri Crook, Carisma Communications email carri@carismacommunications.co.uk or telephone 01842 811313 or mobile: 07704 920 350.
2. For interviews or photo/film opportunities, please contact Carri Crook, Carisma Communications email carri@carismacommunications.co.uk or telephone 01842 811313 or mobile: 07704 920 350.
3. Freeland Rees Roberts Architects' key areas of expertise include: Education: Colleges & Schools; Local Authority; Sports; Extensions; Ecclesiastical; Residential; Libraries; Commercial; Conservation and Domestic.
4. The key sustainable features of the Victorian terrace home in Newnham, Cambridge can be summarised as follows:
 - **Breathing Construction** – Using a breathing construction to moderate internal air humidity (to improve user comfort), and also help with the health/longevity of building components. It can also reduce energy loss through less opening of windows to remove stale air.
 - **Natural Ventilation** - The use of natural ventilation (to improve air quality, and user comfort).
 - **Recycled materials** – Examples include kitchen joinery made from recycled timber, and a damp proof membrane made from recycled plastic material.
 - **Low-Embodied Energy** – Examples include the use of lime render/mortar instead of cement, and the use of clay drainage components instead of a plastic system.
 - **Natural Daylighting** – Using improved natural daylighting to reduce energy bills, and to lighten the feel/atmosphere of the spaces.
 - **Recyclable Materials** – Examples include using clay floor tiles laid in lime mortar, using a thermoplastic TPO single-ply roof membrane that can be recycled and not simply thrown into landfill at the end of its design life.
 - **Natural Materials** – Examples include untreated timber (e.g. using durable or moderately durable timber in particular areas), using materials with low-embodied energy such as reed mat lath for plastering, Heraklith woodwool slabs (strands of timber bound with a breathable, magnesite binder), sand pugging used instead of synthetic insulation, etc.
 - **Local or UK-Produced Materials** (wherever possible) – Examples include clay pampments from Cambridgeshire Tile and Brick, UK-grown timber specified, UK-made windows and doors, etc.
 - **Avoiding PVC** – Using low-smoke zero-halogen (LSOH) electrical cabling was specified to reduce the use of PVC within the building.
 - **Thermal Mass** – Using thermal mass (clay floor tiles, traditional lime plaster, etc.) to help moderate internal temperature.

- **Solar Shading** – Using roof overhangs and solar shading (including pergola) to south elevation to help moderate peak summer temperatures. The use of vines growing over these solar shades is intended to minimise solar gain in summer and maximise solar gain in winter, when the vine leaves have dropped.
- **Green Roof and Rainwater Re-cycling** – A reduction of rainwater discharge from the new roof into the surface water drainage system is achieved in two ways. Firstly, a proportion of rainwater is absorbed by the green/planted roof (a proportion of which evaporates). Secondly, much of the remaining water is held by a rainwater barrel (for garden use).
- **Correct Specification** – Using the correct choice of timber and appropriate detailing instead of chemical preservative treatment, and where necessary, use of more environmentally-benign boron-based preservatives instead of other conventional timber preservatives for doors and windows. Other examples include use of alternatives to chemical sealants (i.e. timber beading/battens instead of silicon putties, gaps between frames filled with cellulose fibre insulation instead of foam sealants).
- **Natural Paints and Stains** - Natural paints and stains instead of petroleum-based materials. Also, removal of the existing failing paint on external brickwork allows both original brickwork to be exposed, and avoids the need to repaint surfaces on a regular basis.
- **Improved Insulation Values to Building Envelope** – The thermal performance (effectively the insulation value) of the building envelope was significantly above the requirements of the Building Regulations at the time of submission (see below). Further, the thermal performance of some of the existing elements (rear bedroom walls and roof) was also upgraded to reduce heat loss and the build-up of condensation.

U-Values (W/m²K)

<u>Building Element:</u>	<u>Building Regulations (At Submission):</u>	<u>As Proposed:</u>
Floor (Solid Floor)	0.25 W/m ² K	0.19 W/m ² K
External Wall (Timber-Framed)	0.35 W/m ² K	0.20 W/m ² K
Flat Roof (Lower Roof) (Ground Floor)	0.25 W/m ² K	0.20 W/m ² K
Flat Roof (Upper Roof) (First Floor)	0.25 W/m ² K	0.21 W/m ² K
Windows (Timber)	2.00 W/m ² K	1.60 W/m ² K
Door (Timber)	2.00 W/m ² K	1.60 W/m ² K

[Note: The lower the value shown, the better the performance]