
DISCUSSIONS

ENERGY EFFICIENCY

ISSUE 4 NOVEMBER 2009



BEING GREEN

This issue of Discussions is specifically tailored to the needs of homebuyers, self builders, developers and anyone with an interest in building or renovating a sustainable home.

It contains expert advice on how to meet the impending changes to the Building Regulations which will require a 25% reduction in CO₂ emissions in new build properties and outlines how REHAU's range of polymer building solutions can help.

With the new REHAU consumer website now live at www.rehau.co.uk/homeowners, you can use

it to find out further details on any of the products featured in Discussions, and even design your own low energy property using our building configurator or search for a REHAU Authorised Partner in your local area.

There are links to the relevant web pages inside or you can contact our head office in Ross on Wye on: 01989 762600 for any further information you require.

THE RACE TO LOW CARBON LIVING

The government hopes to make every new property built in the UK a zero carbon home by 2016. The first step towards this will come in October next year when Part L of the building regulations which governs the thermal efficiency of buildings will be amended to require a 25% reduction in the CO₂ emissions of any new home built.

This will be followed by the formal adoption of the Code for Sustainable Homes, which gives house builders a framework and virtual checklist of the steps required to achieve lower energy losses. The energy requirement of Code Level 3, which has already been implemented in the public sector, will become mandatory in private new builds in 2010, followed by the lower carbon Code Level 4 in 2013 and the zero carbon Code Level 6 in 2016.

As well as the legislative changes, the government is showing its commitment to a lower carbon future with funding to support installations of ground source heat pumps, biomass boilers, photovoltaic systems and other proven sustainable solutions.

REHAU's range of polymer building products are included in many of the government's grant schemes and can help to deliver the energy savings which are necessary to achieve codes 3 to 6 under the Sustainable Homes scheme.

In the assessment criteria used to establish the code's ratings, energy usage is the most significant element and accounts for 37% of the total. In turn, this is assessed on three levels – the thermal performance of the building fabric, how efficiently heat is distributed internally and how effectively renewable energy solutions are employed.

For all three of these key criteria, REHAU products can make a significant contribution towards achieving Code Level 3 and above.

For example, our energy efficient PVC-U windows and doors and our composite curtain walling systems can reduce the window U_w-Value from 2.0 W/m²K to 1.4W/m²K for double glazing options and even down to 0.8 W/m²K with triple glazing, and our REHAU AWADUKT Thermo ground – air heat exchanger can work with a Mechanical Heat Recovery unit to both ventilate and minimise heat losses from the resulting highly air tight building.

Our underfloor heating systems are the perfect partner for heat pump installations with low flow temperatures to boost the performance of the heat pump and deliver a comfortable, yet energy efficient internal environment.

And, in terms of renewable energy systems, REHAU has a range of ground source energy probes which can be utilised with a heat pump. This includes horizontal as well as vertical collectors and our innovative new Helix probe specifically designed for new build developments where space and site access are limited.

The calculations and weighting given to each area within the Code are quite complex but REHAU can provide expert advice on the specification of our products as part of an overall low carbon design scheme. You can even register on the customer portal on our website and try out the Building Configurator (see p?)



WHY CHOOSE A REHAU AUTHORISED PARTNER?

REHAU doesn't install its own products – instead we have a network of Authorised Partners across the UK who are specialists in the installation of our windows and doors, underfloor heating and cooling and renewable energy systems.

By choosing one of these companies for your installation, you can enjoy complete reassurance that you are dealing with a reputable independent business backed by the global resources of the REHAU brand.

All of the companies who are authorised to display the Authorised Partners logo have been checked by us for their professionalism and expertise and, in most cases, will have worked with REHAU for several years.

They undertake to use only genuine REHAU products in every installation and to follow REHAU's technical guidelines at all times.

In turn, REHAU monitors their performance and provides a full range of sales, marketing and technical support.

Find an Authorised Partner

The REHAU homeowners website features an automated search facility which enables you to find a REHAU Authorised Partner in your local area.

From the www.rehau.co.uk/homeowners website, click on Find A Supplier and, when prompted, simply enter your postcode to receive a list of up to five nearby installers.

Each of these will have their own landing page giving additional information about their business which you might find useful and, from here, you can also link to individual company websites.





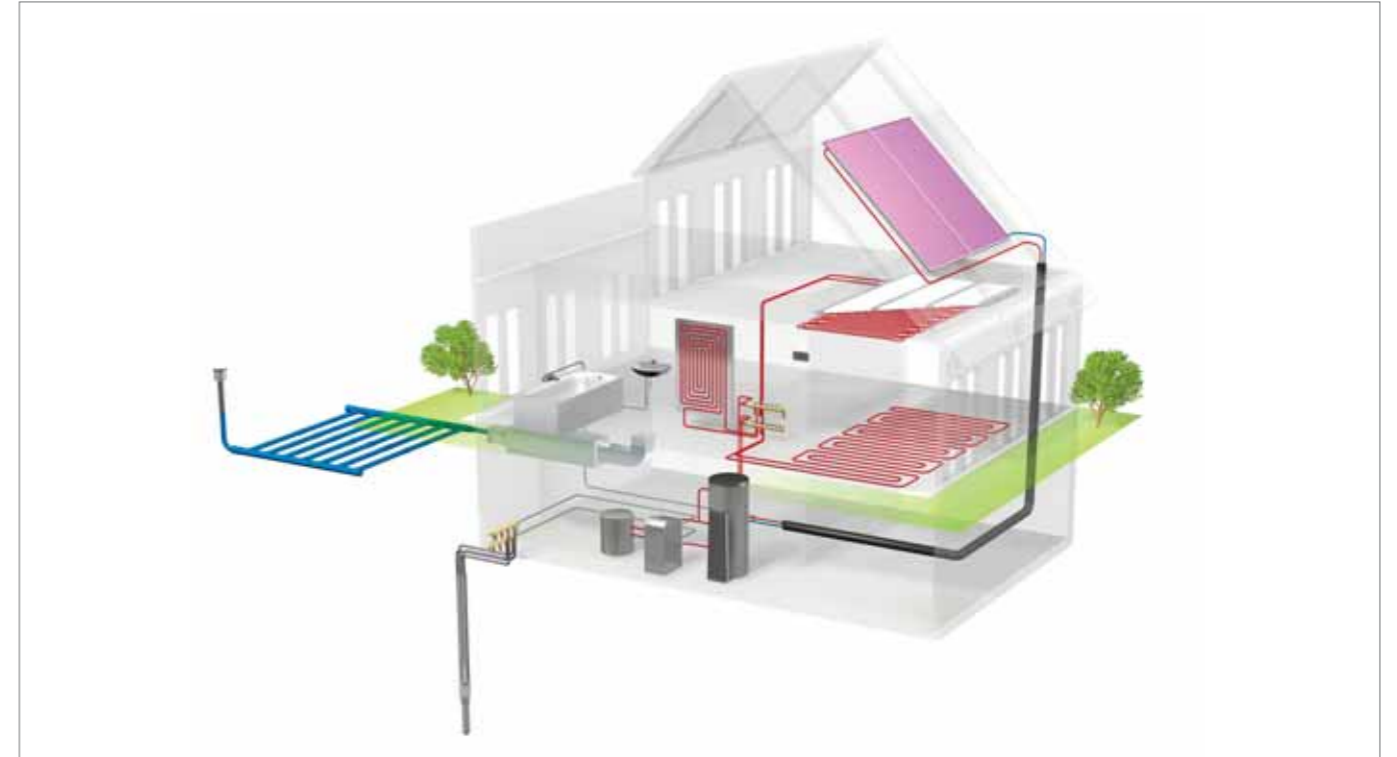
THE BEAUTY OF POLYMER

Polymers are not natural materials in the same way as wood or stone, but they are certainly a match for them in terms of their 'environmental' credentials.

Look around any 'green' building and you will see grass layers on roofs held in place with a plastic membrane, rainwater harvested in plastic containers, solar energy collected on modules held together with plastic enclosures and water transported in plastic pipes. The product stream is endless and goes far beyond the components produced by REHAU.

PVC-U is a uniquely versatile component in the building sector and it is increasingly becoming the material of choice for modern engineers who are using it to design and produce so many of these products which will really help to reduce our environmental impact.

It is the very nature of the material itself which gives it such huge potential. The chemical formulation of PVC-U means that, unlike traditional materials, it can be made to be flexible or rigid and can be worked to very small tolerances. It is mouldable and easily machined and does not change its character or performance over time. Crucially, it also relatively light weight and cost effective and, perhaps most important of all, fully recyclable.



CONFIGURE YOUR LOW ENERGY HOME ONLINE

REHAU's building configurator is a free online tool which will allow architects and designers to optimise the energy efficiency of a new build property using REHAU's range of building solutions.

The system will illustrate the potential energy savings which can be achieved with any of our products – from A rated windows to a ground-air heat exchanger and will also demonstrate the synergies between the various REHAU systems.

The energy requirement of the configured building, expected energy costs and depreciation of additional costs are all calculated automatically and we will even send the results to you automatically by email.

Once launched, all you'll need to do to try out the building configurator will be to visit www.rehau.co.uk/homeowner



A RATING FOR REHAU WINDOWS

The BFRC WER (Window Energy Rating) scheme was launched in 2005 to allow homeowners and developers to differentiate between the energy efficiency of various types of PVC-U windows.

Like the A-G ratings used on domestic appliances, A rated windows are the most efficient and G the least.

A window rated C and above qualifies to display the Energy Saving Recommended logo and most REHAU customers now offer windows to at least this level.

When the scheme started, there was some scepticism as to whether A rated windows would be widely specified because their additional cost inevitably meant a longer payback.

However, in recent years, A rated windows have become much more competitive and the market has woken up to their potential.

A recent installation by REHAU fabricator Chatsworth Windows in Sowerby Thirsk in Yorkshire, for example, involved A rated windows being installed throughout a new build development of town houses.



LUXURY LIVING WITHOUT THE ENERGY BILLS

The Lakes by Yoo is a stunning development of 160 contemporary, lakeside second homes designed by the Raven Group in collaboration with the Yoo Design Studio.

The homes are for sale at around the £1m mark, yet they have been designed with a near zero carbon footprint and a healthy climate control system which will cost just pence per day to run.

Integral to the energy efficient H&V system in place is a REHAU AWADUKT Thermo ground-air heat exchanger system, loops of REHAU RAUGEO polymer pipework and a REHAU underfloor heating and cooling system, installed by Greentec, a REHAU Authorised Partner.

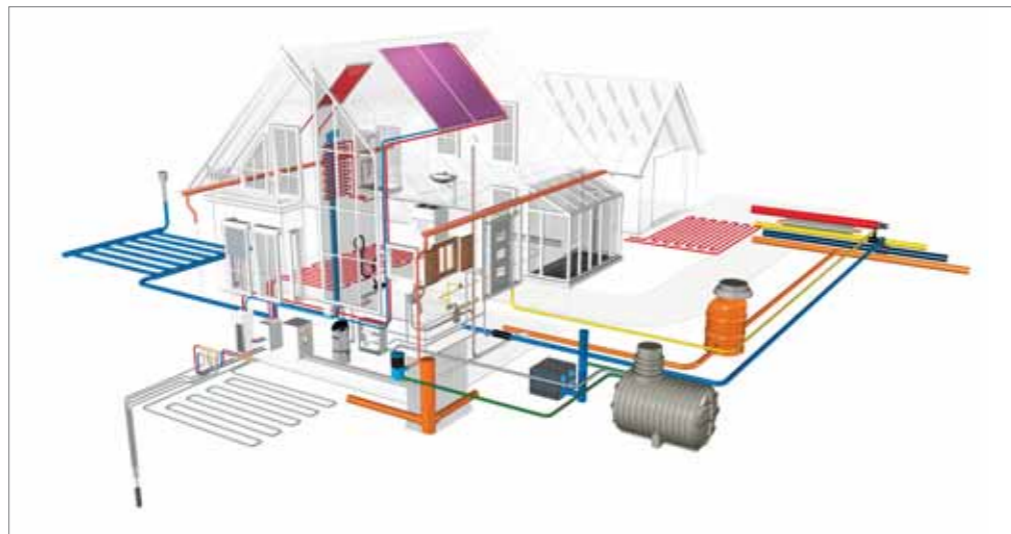
A Mechanical Ventilation and Heat Recovery system (MVHR) in each property draws air through the AWADUKT Thermo pipes laid 1.5m below the foundation of the building, where the natural temperature of the earth

is a constant 8-12°C. On the hottest days, this has the effect of pre-cooling the incoming air by up to 14°C and in winter of pre-heating it by as much as 9°C – so with minimal running costs, the energy required to maintain a comfortable temperature in the home is easily reduced by up to 20%.

The lake itself is the energy source for a heat pump providing hot water, heating and cooling, with fluid circulating through 800m loops of RAUGEO PE100 pipework laid at a depth of 7m on the bed of the lake.

Each house uses 60-80% less energy than a conventional property equipped with a gas boiler and air conditioning system and, under normal running conditions, there are no local CO₂ emissions.

A REHAU HOUSE



A low energy, low carbon house built with the support of REHAU at South Lanarkshire College will not only promote the benefits of sustainable technologies to specifiers and developers but it will also be used to train the young contractors of the future how to design and install these products.

The house features REHAU's RAUGEO ground source energy probes, AWADUKT Thermo ground-air heat exchanger, underfloor heating, polymer pipework, RAURAIN rainwater harvesting system and PVC-U windows and doors.

It meets the Code for Sustainable Homes Level 5 standard – delivering a 100% reduction in CO₂ emissions over current target emission rates. It was the centrepiece for the UK construction skills competition SKILLBUILD which the college hosted in September.

RECOGNITION AT GRAND DESIGNS

REHAU's AWADUKT Thermo ground-air heat exchanger system was shortlisted in the Innovative Building Products category at the 2009 Grand Designs Awards, a fantastic endorsement of the value and benefits of the product in the new build market.



REHAU CABLE MANAGEMENT IN ON THE ACT

REHAU's PVC cable management system is the ideal solution for all power and data cabling requirements in commercial environments.

It is currently being installed for example at the £1bn Barts and The London hospital redevelopment project.

However, it also finds applications in the domestic environment – an interesting one recently was in the Garden Room Studios designed by REHAU PVC-U window and door fabricator CWG Choices.

The Garden Room Studios, which can typically be installed in just one day with no requirement for planning permission, are designed for those working from home or who want a hobby, gym or studio facility which is separate from their home but still immediately accessible.



MAKING MVHR EVEN MORE EFFICIENT

An increasing number of REHAU Authorised Partners in the renewable energy sector are teaming our AWADUKT Thermo ground-air heat exchanger with Mechanical Ventilation and Heat Recovery (MVHR) systems to optimise the efficiency of both technologies and reduce running costs for consumers.

Both ADM Systems in Yorkshire and Starkey Systems in Malvern have completed recent installations in new build properties connecting the REHAU AWADUKT Thermo pipework internally to a MVHR so that ventilation air drawn into the house is pre-warmed by as much as 9°C in winter. This makes a significant impact on its overall efficiency.

A summer bypass option means that a constant supply of pleasantly pre-cooled air is delivered back into the building in summer as an eco friendly alternative to air conditioning.

Both companies typically install the AWADUKT Thermo pipework grids under the gardens or driveways of new homes during the latter stages of construction. All that is visible above ground is the air inlet pipe which can be located discreetly out of sight.



REHAU IN THE KITCHEN

For contemporary interior design schemes, REHAU offers a range of inspiring solutions available either direct or via our distributors and partners.

REHAU's RAUVISIO Mineral, for example, is a cost effective, solid surface material which has the strength, durability and natural appearance of stone but, because it is a polymer, offers almost unlimited shape and design opportunities.

It can be used for worktops, cladding, tables, laboratories and gives developers new freedom to design demanding shapes and curves in their projects.

In contrast with real stone, there are no restrictions with RAUVISIO in terms of weight or cutting templates but it matches the durability and performance of the natural material with a smooth, non-porous and easy to maintain finish.

REHAU's RAUVOLET roller shutter system can be installed in new kitchen design schemes or retrofitted if required and provides a contemporary twist on the conventional kitchen cupboard.

As well as an Express collection which we supply from stock, we even manufacture toughened glass roller shutters in opaque or a stunning new black finish.

REHAU IN THE GARDEN

Exhibited for the first time in the UK at Grand Designs Live, REHAU RELAZZO is the new decking system from REHAU which combines the natural look and feel of wood with the durability and weather resistance of modern polymers.

Manufactured from an innovative Wood Polymer Composite material, it offers homeowners all the advantage of timber decking but with none of the drawbacks.

Because RELAZZO uses natural wood fibres, it has a deceptively real wood appearance and a welcoming, warm feel underfoot. But, because it is combined with polymer, it will not split or warp whatever the British weather throws at it, does not need painting or staining and resists the growth of fungus and moss. All that is required to keep it looking good for many years to come is a regular brush with a stiff broom.



UK & IRELAND SALES OFFICES

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