

Refurbishing Homes Sustainably... ...how low can you go?

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About T-Zero

This 3 year project has been part funded by DTI, with matched funding from the project partners. The main objective is to:

Reduce the life cycle impacts of housing through refurbishment through:

Showing refurbishment is a viable alternative to demolish and new build when certain standards of environmental performance are met.

Facilitate decision-making by quickly identifying the best mix of refurbishment options to reduce environmental impacts;

from the point of refurbishment through subsequent use/maintenance and eventual demolition.

Data Collection using live case studies to ensure recommended approaches are viable within the context of other drivers such as whole life cost, maintenance and preservation of heritage buildings.

Addressing overall impact including material resource efficiency and other life cycle impacts, alongside the main environmental priorities in existing housing of energy efficiency and renewable energy production.

Progress Update

Research Areas

T-Zero is split into 4 main research parties:

- Project management and stakeholder involvement
- Developing and trialling a decision making tool

- Exploiting the outcomes of T-Zero
- Improving evidence and awareness through case studies

Stakeholders

Quarterly newsletters such as this will help raise awareness, and make sure we are building on the excellent work underway in many areas by other parties. To this end, we held a stakeholder event at the DTI conference centre in June to share our work plans and outputs with others working in this field. A key output from this workshop was a review of barriers and possible solutions to achieving resource efficient refurbishment. These can be downloaded, along with presentations, from the T-Zero website: www.bre.co.uk/page.jsp?id=985

Exploiting outcomes

Working closely with other stakeholders, refurbishment improvement packages should be made much easier to get installed at far lower costs, particularly for homeowners where the costs, confusion and hassle are totally disproportionate to the individual benefits they derive. This could include procurement consortia and widespread training of individuals to manage installation of T-Zero packages.

Decision making tool

A web-based decision making tool is under development. This tool will help users to define their needs, wants and constraints to derive a package of options that will help reduce the environmental impact of their homes. We are now working towards a

specification with the aim of creating a beta version in the New Year.

Case Studies

Case studies of actual refurbishment projects will provide input to the tool and an evidence base for policy and best practice recommendations. One case study close to home is the Stable block being refurbished on BRE's site in Watford. T-Zero will manage the testing and monitoring aspect of this refurbishment project, supported by the BRE Trust.

Special considerations are needed due to the presence of bats in the building. The bat survey revealed what many at BRE already suspected – it's a very batty site indeed!

Air tightness tests have recently been carried out prior to asbestos removal. It's also a very leaky building so big improvements should be possible on that front.

Other case studies

Case studies of actual refurbishment projects will provide input to the tool and an evidence base for policy and best practice recommendations. We are now in the process of selecting and gathering information on case studies representing a regional spread and suitable range of building and project types.



BRE Victorian Stable Block

Partners Updates

BRE

Work has now started on upgrading BRE's waste benchmarking software into a Site Waste Management Planning Tool (SWMP tool). This will pull together many of the tools currently available on the Smartwaste website. Site Waste Management Plans are likely to be mandatory for projects over a £250K threshold from April 2008. The SWMP tool will be available for demonstration & testing by December 2007. For further information or to register projects, go to www.smartwaste.co.uk/swmp.jsp

Sustainable Homes have produced 2 new guides. The first guide advises on how to improve the sustainability of existing homes through maintenance programmes using EcoHomes for Existing Buildings. The Sustainability Guide provides advice and examples of how to develop a sustainable strategy that covers an entire organizations remit. Both provide useful case studies. See www.sustainablehomes.co.uk

English Heritage's climate change website aimed at informing owners of traditionally constructed homes on how to adapt and mitigate them to cope with the effects of climate change will be launched shortly with the Victorian house. Georgian and pre 1700 building types will be added for the full launch in January 2008. Two of the series of publications on energy and renewable technologies in historic buildings have been published, titled 'Energy conservation in traditional buildings' and 'Micro wind generation and traditional buildings' and can be found on the English Heritage HELM website. www.english-heritage.org.uk www.helm.org.uk

NEF has been working on the T-Zero webtool alongside BRE, ACE and the other project partners to help model the energy (and CO₂) savings that will accrue from refurbishment measures packages. One of our current areas of focus is how existing models treat solar water heating and, in particular, whether the Government's Standard Assessment Procedure (SAP) has kept up to date with improvements in solar panels and water heater controls. Most suppliers of solar water heating claim that their panels should be able to meet between 40% and 70% of a home's domestic hot water requirement.

However, depending on the parameters used, SAP normally only estimates that solar will meet between 20% and 30% of the home's needs. Among the areas we are looking at are whether SAP over-estimates storage losses, assumes that boilers' summer efficiency is higher than actually achieved and if it under-estimates current demand, as people are taking more showers and baths than when the underlying model was first built.

We are working closely with our colleagues in the Solar Trade Association on this. However, if any readers of this newsletter have relatively recent monitoring data for energy and hot water consumption in a home with (or even without) solar water heating, we'd be very pleased to see it. An ideal situation would be a home with a modern gas boiler that cooks with electricity, as the summer gas consumption would then be almost wholly attributable to domestic hot water. Real world verified data could then be used in the T-Zero webtool to ensure that users get the best advice about the benefits of solar. If so, please contact Ian Byrne Ian.Byrne@nef.org.uk

Construction Products Association

The Association set up its Low and Zero Carbon group in February this year. Progress towards the target of mass market zero carbon housing will only happen if the industry works in an integrated manner. Building on the success of the Network Club which supports integration at the broadest level, the Low and Zero Carbon Group will look solely at those technologies that result in lower carbon emissions from buildings. It will do this by promoting the importance of supply chain integration and disseminating information on:

- LZC heating, hot water technologies and generation of electricity
- Buildings that have low energy demands through high performing fabric and components
- Projects and products that have aimed for low or zero carbon operation

A visit has been arranged to Internorm in Austria to study manufacturing of high performance windows and doors.

Membership is open to all Association members. Non members who are interested in attending the Group's meetings are welcome but are asked to contact the Association in advance as

places are limited. Information on future and previous meetings is at www.constructionproducts.org.uk/activities/Page.aspx?id=184

EHA

The Empty Homes Agency is an independent campaigning charity, which exists to highlight the waste of empty property in England and works with others to devise and promote solutions to bring empty property back into use.

www.emptyhomes.com

Price & Myers have developed Sustaining Towers, an interactive web site which can provide practical advice on refurbishing tower blocks.

The Design Guide offers approximate costs for sustainable strategies, to appreciate the economic benefits and compare the investment cost of varying solutions.

www.sustainingtowers.org

ACE

The Association for the Conservation of Energy exists to reduce overall energy demand to ensure a secure and sustainable energy future.

www.ukace.org

Crestel Partnerships

Crestel Partnerships are a building contractor with a reputation for quality. Mature supply chains bring a vast pool of experience and expertise to both refurbishment and new build schemes, creating quality homes with modern solutions to reduce environmental impact.

www.crestelpartnerships.co.uk

The Guinness Trust

Achievement of the Decent Home Standard is a priority across the Partnership and clearly takes priority for our resources; however we have trialled the use of further improvements to the sustainability of existing properties. Solar water heating panels have been installed to some houses and to a scheme of flats for the elderly. Individual properties with solid walls have been

dry lined with thermal insulating board. The Weather Watch control system has been trialled on some properties with electric storage heating. A limited number of electric boiler wet heating systems have been installed. A feasibility study has been undertaken to provide a mini CHP in flats for the elderly, and also for photovoltaic cells on a block of flats with electric storage heating. Investigation work has been carried out to install ground source heat pumps and further electric boiler wet heating system. Our trials and learning continue.

www.guinnesstrust.org.uk

ZEDfactory Ltd

Bill Dunster architects ZEDfactory Ltd is a 20 strong practice established in 1998. As leaders in the field of zero-carbon design and development, ZEDfactory have a unique track record of delivering Zero (fossil) Energy Development (ZED) buildings in the UK.

www.zedfactory.com

SFHA

The Scottish Federation of Housing Associations currently represent 156 Housing Associations and 63 Local Housing Organisations. The SFHA is owned by its membership and exists to support the work of housing associations and co-operatives in Scotland by providing services, advice and good practice guidance.

www.sfha.co.uk

BRHG

The Building Research Housing Group (BRHG) is a not-for-profit organisation where social housing providers share knowledge, expertise and documents. The BRHG represents the social housing sector in the core panel of the new *National Centre for Excellence in Housing*.

Please get in touch as we are always looking for new members to increase the lobbying potential of the group. Contact James Honour on 01923 664413 or honourj@bre.co.uk. We are currently offering free tours of the Innovation Park for new members. www.brhg.org.uk

News

Consultations

1) The future of the Code for Sustainable Homes - Making a rating mandatory

This consultation document by Communities and Local Government (CLG) follows on from the response received to Building a Greener Future: Towards Zero Carbon Development, where it was asked if rating against the Code should be mandatory. This consultation document explores this in more detail and seeks views on:

Responses are required by 23 October 2007.

The consultation document and other information can be found

<http://www.communities.gov.uk/index.asp?id=1511885>

2) Department for Business, Enterprise and Regulatory Reform (National) – Draft Sustainable Construction Strategy

The proposed joint strategy, launched today for consultation, aims to help the industry deliver more sustainable construction methods and products.

The draft strategy's key areas include:

- * Reducing the carbon footprint of activities within the construction sector
- * Production of zero net waste at construction site level
- * Developing voluntary agreements and initiatives
- * Creating a safer industry by improving skills, boosting the numbers of workers taking part in training programmes, and retaining more skilled workers. **The deadline for comment is November 30, 2007.** To view the consultation see: <http://www.berr.gov.uk/files/file40641.pdf>

T-Zero Partners:

