New homes rise from rubbish

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Imagine if you could turn old rubbish into new houses.

That's exactly what civil engineer Dr John Forth from University of Leeds wants to achieve with the invention of a building block made almost entirely of recycled glass, metal slag, sewage sludge, incinerator ash, and pulverised fuel ash from power stations.

Dr Forth, from the School of Engineering, believes the 'Bitublock' has the potential to revolutionise the building industry by providing a sustainable, low-energy replacement for around 350 million concrete blocks manufactured in the UK each year. "Our aim is to completely replace concrete as a structural material," he explained.

"Bitublocks use up to 100% waste materials and avoid sending them to landfill, which is quite unheard of in the building industry. What's more, less energy is required to manufacture the Bitublock than a traditional concrete block, and it's about six times as strong, so it's quite a high-performance product."

The secret ingredient is bitumen, a sticky substance used to bind the mixture of waste products together, before compacting it in a mould to form a solid block. Next the block is heat-cured, which oxidises the bitumen so it hardens like concrete.

This makes it possible to use a higher proportion of waste in the Bitublock than by using a cement or clay binder. The Bitublock could put to good use each year an estimated 400,000 tonnes of crushed glass

and 500,000 tonnes of incinerator ash. Plans are now underway to develop a‘Vegeblock’ using waste vegetable oil.

This innovative project - funded by the Engineering and Physical Sciences Research Council - is being carried out in partnership with Dr Salah Zoorob from the University of Nottingham. Their work could be on the market within three to five years, and there is enormous commercial interest.

Source: University of Leeds