Want not? Waste not!

The drive toward sustainability in construction has transformed the recovery, re-use and recycling of demolition arisings into something of an art-form, explains Paul Clarke-Scholes

Waste is a demolition contractor's biggest cost so it has always been in our interests to recover and re-use or recycle as many of the demolition arisings as possible. However, in the last ten years the concept of sustainability in the construction industry has steadily worked its way up the agenda. Now our ability to manage waste is not just a cost-cutting exercise but is now subject to regulatory compliance and has also taken on an ethical dimension as well.

Increasingly planning consents for property development reference resource management targets such as BREEAM and its residential counterpart the Code for Sustainable Homes. Amongst others, disciplines such as implementing environmental design and the sourcing of sustainable building products – credits are available for responsible site activities which include the preparation and maintenance of a plan for managing waste.

Since May 2008 it has been a legal requirement to prepare such as document for all construction projects that exceed £350k in value. The Site Waste Management Plan Regulations requires the preparation of a plan that estimates the quantity of each type of waste expected to be produced and tracks their recovery and destination throughout the lifecycle of construction projects.

Occasionally the client will go further and specify a percentage of demolition arisings that must be recovered and re-used or recycled. In 2007 Clifford Devlin were obliged to submit a Site Waste Management Plan and demonstrate our ability to recycle 85 per cent of waste when bidding for a demolition project in Hackney. The project, which involved the demolition of several blocks of flats on a housing estate, was chosen by the Building Research Establishment (BRE) as an exemplar in its Construction Research Efficiency (CoRE) programme. The BRE independently observed the methodology we used to recover and recycle waste, and ultimately over 98 per cent of the three thousand tonnes of arisings were recovered/recycled, surpassing the expected target.

Above: timber can be reused in a variety of ways

Segregating the waste

Recovery and recycling rates in excess of 98 per cent have now become routine – even in challenging projects and inner-city locations. So, how do demolition contractors manage to achieve such startling figures?

To best explain the methodology I will describe a typical demolition project Clifford Devlin carried out in 2009. The project involved the demolition of several buildings in a secondary school in Harlow. Following the removal of asbestos-containing material and loose materials the demolition, which was carried out using long-reach machinery and mini excavators, produced a total 11,500 tonnes of waste. Operatives working at ground level were tasked with segregating the waste into ten different waste streams.

The principal contractor had requested that any concrete aggregate be processed into graded material for use in the build phase. We used the Quality Protocol devised by waste agency WRAP to process ten thousand tonnes of concrete and brick aggregate into 6F2 grade which was left on-site. This involved taking samples of the discharge from the on-site crusher and sending them to a laboratory which analysed the quality of the granules against the specification. This enabled us to produce independent certificate of the quality of the RCA we left for the building contractors.

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Skips were provided for glass, timber, metal and plasterboard waste which was removed to local recycling centres. It is important that we are able to locate recycling centres in the vicinity to minimise the overall energy consumption (fuel) of the demolition phase, which is another key sustainability target. Over 600 tonnes of tarmac was carefully removed as a single waste stream and transported to a local contractor that uses it for "road plannings" - a readily compactable temporary road or sub-base.

Salvaged materials

Rubbish, which includes a variety of items from ceiling tiles to MMMF matting, carpets, curtains, blinds, pipework insulation, plastics, bitumen, plastic windows, MDF and chipboard furniture was taken to a waste transfer station where it was re-sorted and 80 per cent recycled. In all just 177 tonnes of waste (1.5%) was sent to landfill - half of which was asbestos or other hazardous material.

It is unlikely we will be able to improve much upon the 98-99% recycling rates although we are always looking for creative ways of re-using salvaged materials from demolition projects. We were recently able to source a joinery that could recycle large timber floor boards, salvaged from a residential apartment building, into farmhouse tables. We have even managed to find a company which recycles mattresses by stripping the fabric, removing the springs and recycling its constituents, including the foam.

Our next initiative is to replace timber perimeter hoarding panels with recycled plastic for establishing the boundary of the site. Although on the surface it doesn't sound too sustainable we have traced a supplier who can process second-hand panels for re-use, thus providing 100% recyclable material unlike timber which actually degrades substantially during the recycling process.

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