

Initiatives to promote sustainability must be embedded into the fabric of construction projects if they are to succeed, says **Michelle Pearce**, project manager for Hackney Homes.



# RESOURCE RECLAMATION

SUSTAINABILITY is without doubt a major issue within the construction sector. There is political as well as social pressure for the industry, as a significant consumer of natural resources, to introduce measures to improve efficiency in the use of energy and materials at both the operational as well as the design stages.

However, there has traditionally been little room for sentiment in an industry driven by price and short-termism – factors which have become only more influential as the credit crunch takes its toll. While measures to reduce consumption promise efficiency savings in the long run, their practical implementation often has the effect of initially increasing cost and timescales – unwelcome factors that can present something of a conflict of interest for the project manager whose principal responsibility is to ensure the programme is delivered on-time and to-budget.

However, if sustainability targets can be integrated into the project's methodology the conflict is removed as we are discovering during the course of a pilot study in the London Borough of Hackney. The Council is keen to implement a climate change strategy and saw the regeneration of the Kings Crescent Estate as a perfect opportunity to test some of its sustainability initiatives.

The Estate, which is located on the northern border of Hackney, just walking distance from Arsenal's stadium, consists of 400 homes and is a mixture of low-rise housing and flats. Its redevelopment is part of a Borough-wide initiative to upgrade Hackney's social housing stock within the Government's Decent Homes Programme launched in 2000.

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The Borough's commitment to sustainability caught the attention of the Building Research Establishment (BRE) who selected the Kings Crescent project as an exemplar for its Construction Research Efficiency (CoRE) programme. Under CoRE the BRE offers organisations help and support on implementing resource efficiency measures.

With the help of the BRE a number of targets and initiatives to promote sustainability were integrated into the Kings Crescent project lifecycle. Economic, social and environmental factors were given equal weighting when selecting contractors and consultants for the programme. The successful candidates had to demonstrate a commitment to reducing the impact their activities have on the local and wider environment.

It was stipulated in the tender documentation that a minimum of 85 per cent of the waste generated during the demolition process was to be re-used or recycled. The chosen demolition contractor, Clifford Devlin, were instructed to prepare a Site Waste Management Plan which set out the practices and procedures they would use to handle and manage the waste they generated. The plan, which was based on the BRE's pre-demolition audit, listed the estimated quantities of each type of waste expected to be produced during the demolition phase, the methodology used to recover them and their final destination.

Since then the preparation of Site Waste Management Plans has become a legal requirement for all construction projects exceeding £300k in value.

As part of the regeneration programme, two

**DEMOLITION SITES:** The block of flats in Westmill Court (below) and low-rise housing in Kings Crescent Estate (middle).



blocks of two-storey houses and three-storey flats were earmarked for demolition in 2007. The buildings were initially stripped of fixtures and fittings, furniture, carpets, curtains, pipework, wiring, vessels, heating and lighting, windows, doors, staircases, floorboards, non-load bearing partitions and other non structural items.

Structural demolition was carried out using excavators fitted with breakers and hammer attachments. All waste was sorted and segregated on-site with designated skips provided to collect each waste stream. Skips were provided for glass, ferrous metals, non-ferrous metals, plasterboard and timber. These materials were removed from site to local recycling plants.

The segregation and management of the waste streams was carefully controlled by Clifford Devlin as contamination results in the load being rejected for recycling and tipped as rubbish. For example, glass must be separated from any hardcore; timber must be free from MDF and any metal larger than screws and nails if it is to be accepted for chipping. Plasterboard can only be sent for gypsum reclamation if uncontaminated by timber.

Roof trusses were moved to the ground in large sections to allow timber salvage and the disposal of polythene and bitumen lining materials. Slates and roof tiles were carefully recovered for re-use depending upon their quality.

Bricks and concrete were crushed and left on-site as Recycled Concrete Aggregate (RCA) for use as backfill or landscaping purposes. Only materials such as man-made mineral fibres, other insulation and polythene were disposed of as rubbish and removed to landfill.

The BRE supervised the measurement of the quantities of re-used materials while the weight of recycled waste was calculated from waste transfer notes provided by the recycling suppliers. As part of the BRE's involvement we were given access to its waste auditing tool, SMARTStart which processed the data into graphical models and produced an Environmental Performance Indicator (EPI) and a Key Performance Indicator (KPI) for the project.

Clifford Devlin was able to re-use or recycle 98 per cent of the three thousand tonnes of waste generated during the demolition phase. This far exceeded our expectations and the minimum requirement of 85 per cent set for the project. We were particularly impressed with their ability to recover plasterboard and wood during soft strip.

We worked closely with ZedFactory Architects to introduce sustainability targets into the refurbishment phase. A series of energy efficient measures were inserted into our Standard Assessment Procedures for this type of work to help us to achieve the Borough's objective of a Level Four rating for the Code for Sustainable Homes. The aim is to apply the measures used in the refurbishment of Kings Crescent such as roof and loft insulation, double glazing and cavity wall insulation across all of



**RE-USE:** Recycled concrete aggregate was crushed and left on site (top right) and then used for landscaping (above).

the refurbishment and new-build projects in Hackney.

Besides the crucial goal of achieving excellent refurbished homes for our residents, achieving the highest possible level of energy efficiency for these buildings has been the main aim of this project from the beginning.

The refurbishment is currently still at the planning stage. Once this is completed we will have the building independently audited to verify that they comply with Level Four Code for Sustainable Homes.

The pilot study at Kings Crescent has clearly demonstrated that the inclusion of targets and procedures to promote sustainability and resource efficiency in the framework of construction and building projects produces tangible and reportable results. While most of us are genuinely committed to reducing our consumption of the earth's natural resources, it is only the practical implementation of the disciplines of energy and material reduction which change the way we work to allow us to ultimately make a difference.

- Hackney Homes was launched in April 2006 and is responsible for managing council homes in the London Borough of Hackney. The not-for-profit organisation, which is 100 per cent owned and controlled by Hackney Council, is an arms length management company (ALMO) – a model that has been successfully adopted by a number of other leading local authorities to improve housing and service to the community.