Pre-demolition audit—Kelvin Hall School, Hull

This case study details the key outcomes of a pre-demolition audit carried out at the Kelvin Hall School in Hull.

Pre-demolition or pre-refurbishment audits provide a useful tool to understand and manage demolition or refurbishment waste. The types and amounts of waste likely to arise are identified and waste management options following the waste hierarchy can be assigned.

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BRE was commissioned by Balfour Beatty to carry out a pre-demolition audit of the Kelvin Hall School in Hull

The project
BRE was commissioned by Balfour Beatty to carry out a pre-demolition audit of three buildings on the Kelvin Hall School site in Hull. A new, larger school building had been completed adjacent to the existing buildings that were to be demolished.

The pre-demolition audit was carried out as part of the BREEAM accreditation for the project.

The demolition site
The buildings to be demolished were constructed in 1957 and comprised a three-storey building with two smaller single-storey buildings. The main building had a reinforced concrete frame with masonry external walls and concrete floor and roof slabs. The building also had large glazed facades with cement panels. There were two smaller single-storey buildings also to be demolished.

A pre-demolition audit of Kelvin Hall School, Hull, showed that more than 95% of materials arisings could be diverted from landfill.

The pre-demolition audit
BRE conducted the audit using architectural drawings and data gathered during a site survey. A site visit was carried out to measure and record the types and amounts of materials that would be removed from site as part of the demolition. In addition, the condition of the different components was assessed to determine their potential for reuse and recycling. An estimate of the overall volume and tonnage of waste likely to be generated was produced for nine key demolition products.

Key demolition products
It was estimated that the total demolition products would amount to over 6,000 tonnes. The key demolition products identified were concrete, bricks and steel which accounted for over 95% (by weight) of the total demolition products. There were smaller amounts of plaster, timber, glass, PVC and flooring materials. In addition, there was a significant amount of cladding material thought to asbestos cement.
Recommendations

The audit showed that a large proportion of the key demolition products could either be reused or recycled. Although the new building had already been completed, all the concrete and brick arising from the demolition was crushed and reused under the car park and hard landscaping areas which were completed following demolition. Steel, the other main demolition product, could be readily recycled off site.

The ‘other’ waste stream includes items such as furniture and IT equipment and it was recommended that these be reused in the new building or offered to charities for reuse in other facilities.

Small amounts of timber, glass and PVC were present but these were in quite poor condition so it was recommended that they were segregated and sent to a waste transfer station for recovery.

Conclusions

The pre-demolition audit showed that the potential waste arisings total more than 6,000 tonnes and the main demolition products could be readily recycled offsite. Recommendations for managing the different waste stream were provided and showed that 95% of the demolition waste could be diverted from landfill.

Quote from Balfour Beatty

“The pre-demolition audit has really helped to build on our existing knowledge of our demolition waste and the opportunities for avoidance to landfill. Working with our demolition contractor we managed to exceed the predicted 95% avoidance to landfill and actually achieved 99%! This is a really great result and we will be taking these learnings onto our future projects.”