

Case study: Waste minimisation and management in construction

Managing waste to improve segregation, recovery and recycling

The Wates Group and Henry Boot



Innovative wheelie bin system

One sector which poses a challenge for waste management techniques is the prison sector. The biggest issues here are a combination of heightened security, constraints on movement around site and a lack of space. These hurdles were faced by Willmott Dixon at HMP Lindholme in Doncaster where construction works were being carried out within the live prison environment. With limited space inside the secure line of the prison and stringent security, Willmott Dixon adopted a bespoke method to segregate waste. A colour coded lockable wheelie bin system was introduced along with a lockable 8 cubic yard skip for general builders waste. This simple yet innovative system enabled the segregation of 5 different waste streams including timber, metal and packaging. Once full the bins would be rotated back to the main waste compound where they were emptied into larger labelled skips ready for collection.

Waste bags

The Wates Group are utilising this method of waste management within several of their divisions. Bags are generally chosen in the following situations:

- space and movement restrictions on site;
- restricted vehicular access to site;
- works taking place at multiple locations on site; and
- to remove the reliance on waste transfer centres to segregate waste.

One drawback to this method is that when all factors are considered the bag is typically 25-30% more expensive than a skip on a per cubic-yard basis. However, the bags can be filled much more efficiently than a skip (less air voids) so the cost differential per-tonne, can be significantly less. Typically, at their site in Liverpool, Wates are getting around 350Kg

On site waste management tips:

- tailor the approach to the site – push the boundaries in innovation;
- consult the experience of your waste management contractor;
- try to segregate as much as possible on site; and
- ensure your waste management contractor has good materials recovery performance and the right credentials.

In construction, waste management is not always straight forward. Some sites have spatial constraints, some have security issues and access limitations, and other sites have several build levels making effective waste management even more of a challenge. No one site is the same and waste management measures have to be adapted to ensure they are effective. This case study identifies simple techniques that have been adopted in the construction industry in a variety of situations.

of waste in a 1 cu-yard bag. Further benefits of this method being realised by Wates are as follows:

- the ability to move the container to the waste, not the waste to the container;
- elimination of double-handling of the waste from smaller containers to skips;
- useful in confined spaces and high level operations where skips and other containers would cause logistical issues; and
- flexibility to increase/decrease number of bags to respond to needs on the project.

As Wates have become more familiar with the bagged waste collection system they have developed innovations which help to reduce the effective cost premium. The use of crushers to maximise bag space has increased the mass of waste in a bag by a factor of at least 2. The cost of hiring the crusher for a week is offset with every 3 bags filled using it.

Chutes

High level projects such as re-roofing and refurbishment on several levels make the segregation of waste streams difficult. Henry Boot have worked around this by setting up a series of colour-coded chutes for different waste types such as inert, metal and mixed wastes on projects where access is an issue. One example was a refurbishment project at HMP Wakefield based on several storeys with scaffolding covering all sides of the building affecting access to the higher levels. The main benefit of utilising this technique has been

a reduction in manual handling which has positive health and safety implications on the site.

Reliance on waste contractor

Conversely, at HMP Leeds, security issues have prevented Henry Boot from utilising their chute system and instead their waste management has been limited to a single 40 cu-yard skip by the prison. They are solely reliant on their waste management contractor to ensure segregation and recycling is maximised at the waste transfer centre. As a consequence Henry Boot only use waste contractors from their preferred list who must meet requirements such as having a waste transfer centre and providing monthly waste reports on amounts of waste created and recycled. The result is that even without on-site segregation Henry Boot are managing to recycle approximately 80% of their waste. In this situation it is important to ensure you are appointing a waste contractor with whom you have good relations with and full confidence in.

The different techniques being adopted by construction contractors show that segregation on site is a key factor to minimise the cost of waste management and the tonnage of waste sent to landfill. However, also important is being able to identify a waste contractor with the right capabilities. The different initiatives adopted by the various contractors on projects also highlight the need to adapt waste management techniques to suit the on site situation and maximise the way waste is handled and ultimately minimised.

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