



Interim findings: wastage rates for blocks and ready mixed concrete

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Introduction

Reusefully Ltd have completed a study for the MPA Masonry, the Brick Development Association (BDA) and the British Ready Mixed Concrete Association (BRMCA) to provide an updated set of wastage rates for blocks and ready mixed concrete. The current wastage rates were developed well over 10 years ago and are used in various assessments and guidance, including whole life carbon assessments. These findings have been produced to feed into the consultation relating to updating of the RICS Professional Statement on whole life carbon assessment for the built environment. The final report will be published by end March 2023.

Definition

Material wastage can be defined as “*The difference between the quantity of materials required and the actual quantity of materials ordered and delivered to site*”. From this, the wastage rate (%) can be derived. It is important to make the distinction between the term “wastage rate” and ‘material requirement’ – the minimum quantity of materials required to construct the specified element(s) and wastage allowance – the quantity of materials that are purchased in order to ensure that the task can be completed without running out of materials. A certain level of wastage is therefore inevitable (to varying degrees).

Method

In order to update the wastage rates, three main activities have been undertaken:

1. A desktop review has been undertaken to review existing wastage rates that are used now and the related data sources, such as those specified in guidance documents and some academic research. This included a review of relevant EPD for blocks and ready mixed concrete and wastage rates assumed in these. Cost books were also investigated in terms of wastage allowances.
2. A survey targeting contractors (primarily for site waste data, including main causes of waste) and suppliers (primarily for product takeback data) was widely distributed (from July 2022 to December 2022). The scope was focused on concrete block (light and dense) in the housebuilding sector; and ready mixed concrete in relation to commercial and public projects (for ready mixed concrete). 31 responses were received, broadly split as one third from contractors/ developers, two thirds from suppliers.
3. Interviews have been carried out to further establish waste data, causes of waste, trends, barriers and opportunities to reduce and recycle waste from these product groups. Those targeted include housebuilders, developers, main contractors, suppliers, trade bodies, LCA/environmental reporting software providers, and sub-contractors.

Results

Concrete Blocks

The wastage rates historically used for concrete block wastage is:

PRODUCT	Green Guide to Specification Wastage rate (%)	WRAP NetWaste tool Wastage rate (%) (baseline)	WRAP NetWaste tool Wastage rate (%) (good)
Dense Concrete Blocks	5	20	5
Lightweight Concrete Blocks	5	20	5

Based upon the combined results from the three study activities, the following wastage rate is estimated to be reasonable across most housebuilding projects for all causes of waste (subsequent to product leaving the supplier/distributor for the construction site).

Proposed wastage rate: 5% (baseline, more data needed to determine good practice)

From survey and interview feedback, there was a tendency to think that block waste has increased over the last 5 years with the main cause of waste around design and storage. Block waste is likely to be crushed and used on site in many cases so will not be captured in waste data based upon weights or volumes of material leaving the site or arriving at a resource management facility.

Blocks with minor visual imperfections can still be used. Some projects also move unused product to other sites if surplus to requirements.

Ready Mixed Concrete

The wastage rates historically used for Ready Mixed Concrete is:

PRODUCT	Green Guide to Specification Wastage rate (%)	WRAP NetWaste tool Wastage rate (%) (baseline)	WRAP NetWaste tool Wastage rate (%) (good)
In-situ concrete	2.5/5/7.5	5	2.5

Based upon the combined results from the three activities, the following wastage rate is estimated to be reasonable across most commercial and public projects for all causes of waste (subsequent to product leaving the supplier/distributor for the construction site).

Proposed wastage rate: 1-2%

From survey and interview feedback, there was a tendency to think RMC waste rates are falling due to more efficient production, client ordering and usage with better control of quantities (pours). Often, small areas requiring concrete are reserved to make use of RMC left over from bigger pours. If not possible, waste concrete is often crushed and used as hard core/ fill material around the site.



Next steps

The final report is being prepared for publication by end March 2023 which will have further detail on the range of data and the insight collated on causes and management of waste.

If you would like to provide data & insight to Reusefully Ltd to feed into this study, or subsequent follow up, please contact Katherine Adams (katherine@reusefully.co.uk) or Gilli Hobbs (gilli@reusefully.co.uk).