

Target Sustainability House Builders Project

Benchmark Homes

About the Project

Company: Benchmark Homes

Project: 25 Glen Oaks Drive, Christchurch

House size (floor area): 283 m²

Building type: Oamaru stone cladding, timber frame

Waste contractor: Mastagard

Sorting site: Reworks



Benchmark Homes © Copyright

Introduction to the Project

Benchmark Homes signed a Memorandum of Understanding with the Christchurch City Council to participate in the Target Sustainability House Builders Project. The objective of the project was to reduce solid waste going to landfill and cleanfill from new house construction. The project also aimed to test the REBRI (Resource Efficiency in the Building and Related Industries) guidelines and to develop measure-to-manage tools and key performance indicators for new house construction.

Benchmark Homes chose one construction project on which to identify opportunities to reduce waste to landfill and cleanfill and apply the REBRI Guidelines and measure-to-manage tools. The house was a 5 bedroom, Oamaru stone and timber house.

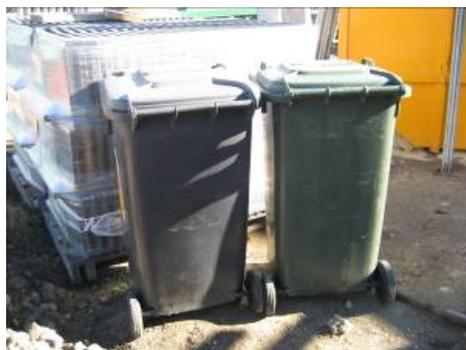
Waste Reduction Initiatives

The majority of waste was sorted off-site due to limited space on-site for waste sorting. Benchmark Homes did the following on-site to try to minimise the amount of waste going into the skip and to maximise the amount of waste that could be recovered off-site:

- Soil scraped during site preparation was stockpiled for reuse back on-site during landscaping.
- Mastagard provided separate wheelie bins for the sub-contractors general recycling (e.g. drink bottles) and lunch waste. RONZ signs were used to label the bins. A fax was sent to sub-contractors asking them to use the wheelie bins for their lunch waste. Keeping the materials in the skip clean and dry maximises the amount that can be recovered for reuse or recycling at the sorting site.
- A pile of timber off-cuts was kept aside for reuse on-site as dwangs and nogs.
- Pallets were returned to the suppliers for reuse, instead of disposing of them in the skip.
- Oamaru stone off-cuts were sorted on-site into a separate hardfill skip provided by Mastagard.
- Off-cuts of fibre glass insulation were left in the garage ceiling.
- The painting contractors were asked to leave paint to dry in the containers before putting the containers in the skip. This ensured the dry materials in the skip weren't contaminated by paint.
- The sub-contractors were asked to flatten boxes before they went in the skip. Flattened boxes save room in the skip and ensures materials are easier to recover at a sorting site.
- The carpet layer was asked to leave the larger carpet off-cuts on-site for use by the owners as mats.



Soil stockpiled for reuse on-site © Copyright



Separate wheelie bins for recycling and lunch waste © Copyright



Timber off-cuts for reuse © Copyright

Waste Sorting

Space on house building sites is often limited. Therefore, the use of skips and off-site waste sorting was considered to be the best option. Mastagard collected the skips and took them to Reworks for materials sorting. Three 7.5 cubic metre and two 3 cubic metre skips were removed for sorting during the house construction.

Mastagard recorded the waste composition in the skips by doing a visual estimate when they were emptied at the sorting site. They sent this information to Benchmark Homes using a simple data collection sheet. The composition and destination of the waste in the skips is shown below (right).

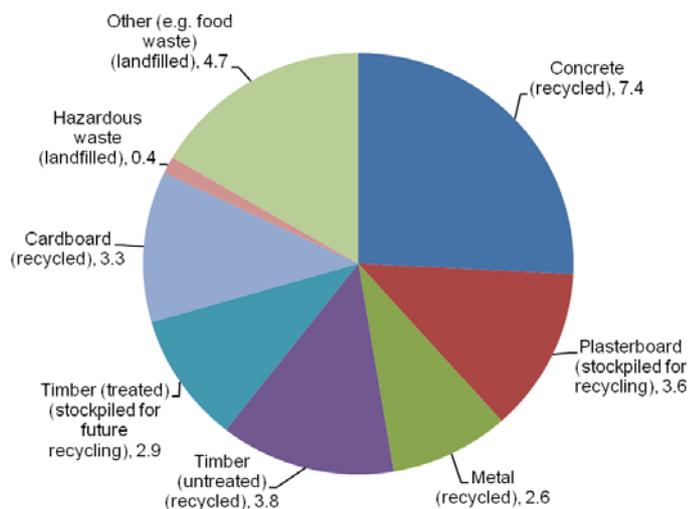
Once at the sorting site, all of the material from mixed skips is put over a large vibration screen and sorting line where the different materials, e.g. cardboard and metals, are separated. Reworks provided information on the waste materials recovered for reuse and recycling.

The Key Performance Indicators for the house build project are shown below (left). 82% of the waste material in the skips was reused or recycled (e.g. plasterboard and treated timber). The main material that was landfilled was fly tipped materials, mainly food/green waste (included in the pie chart as "Other"). The treated timber was stockpiled for trialling as a fuel in a consented, high-temperature furnace.

Waste Summary and KPIs

| | |
|---|---------------------------------------|
| Total waste weight | 6.96 tonnes |
| Kilograms per 100 m ² floor area | 2,459 kg/100m ² |
| Total volume of waste | 28.5 m ³ |
| M ³ recycled/reused per 100m ² floor area | 8.3 m ³ /100m ² |
| M ³ landfilled per 100m ² floor area | 1.8 m ³ /100m ² |
| Percentage recycled/reused/stockpiled for recycling | 82% |
| Percentage to landfill | 18% |

Waste Composition and Destination (m³)



Difficulties

- Space on-site was an issue as the site was small and the house large. There was not a lot of room on-site for bins, materials and off-cuts piles. **Tip: Ask suppliers to deliver materials to site only when needed.**
- Unauthorised dumping in the skip was a problem as the house building site was in a developed residential area. **Tip: Put up a fence around the site and put up signs warning the public against putting their waste in the skip. Move the skip away from the fence to prevent waste being thrown over. Consider asking your waste contractor to provide a lockable lid.**
- The carpet supplier did not take back carpet off-cuts. Some of the carpet was left on-site as mats. The rest were disposed of in the skip (included in the "Other" category). **TIP: Talk to your supplier about whether they take back carpet off-cuts for recycling or reuse.**
- Although the sub-contractors were asked to flatten boxes, they did not always comply. **Tip: Put up signs reminding sub-contractors about on-site waste management practices. Do reminders at tool box meetings.**

Future Plans - Benchmark Homes

- Benchmark Homes are looking into using composting systems on-site for food waste
- Benchmark Homes are looking into signage for skips to warn against unauthorised dumping in the skips.
- Benchmark Homes plan to use the data they have obtained through this project to educate their sub-contractors to help them to improve their practices.

Want more information? Visit the Target Sustainability website at www.target sustainability.co.nz

The REBRI guides are available at www.rebri.org.nz