

# CASE STUDY



## Target Sustainability House Builders Project

## Orange Homes

### About the Project

**Company:** Orange Homes

**Project:** Barrowclough St, Christchurch

**House size (floor area):** 180 m<sup>2</sup>

**Building type:** Brick cladding, timber frame

**Waste contractor:** Quickskips

**Sorting site:** Reworks



Orange Homes © Copyright

### Introduction to the Project

Orange 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.

Orange 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, brick and timber, Housing New Zealand house.

### Waste Reduction Initiatives

The majority of waste was sorted off-site due to limited space on-site for waste sorting. Orange 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:

- The project manager put up signs asking sub-contractors to put wet waste (e.g. food scraps) into a black rubbish bag. When full, the bag was tied up and put in the skip. Keeping the dry waste in the skip clean and dry, maximises the amount that can be recovered for reuse and recycling at the sorting site.
- The project manager returned  $\frac{1}{4}$  of a pallet of bricks and the brick pallets to their supplier for reuse.
- The carpet layer was asked to leave the larger carpet off-cuts on-site for use by the owners as mats.



Brick pallets returned to supplier for reuse © Copyright



Sign asking sub-contractors to put wet waste in the black bag © Copyright

- A sign was put up asking the sub-contractors to flatten boxes before they went in the skip. Flattened boxes saves room in the skip and ensures materials are easier to recover at the sorting site.



Carpet off-cuts left on-site for reuse by owners © Copyright



Bricks returned to supplier 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. Quickskips collected the skips and took them to Reworks for materials sorting. Three 7.5 cubic metre skips were removed for sorting during the house construction.

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

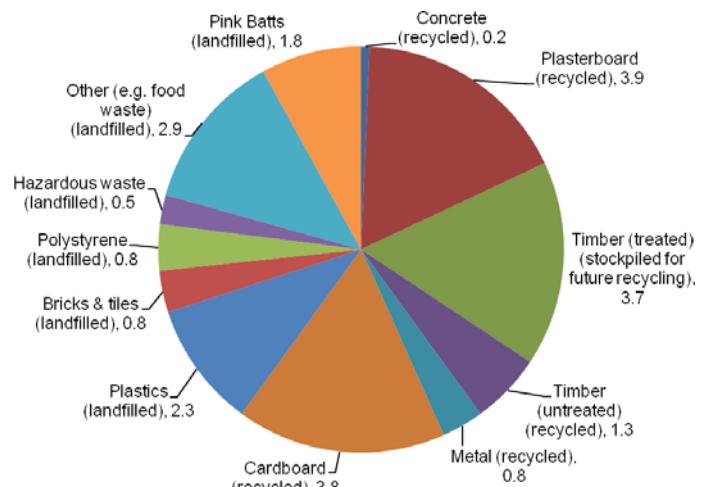
Once at the sorting site, all of the material from mixed skips is put over a large vibration screen and sorting line where the materials, e.g. cardboard and metals, are separated. Reworks provided information on the waste materials that were recovered for reuse and recycling.

## Waste Summary and KPIs

Total waste weight	4.08 tonnes
Kilograms per 100 m <sup>2</sup> floor area	2,267 kg/100m <sup>2</sup>
Total volume of waste	22.5 m <sup>3</sup>
M <sup>3</sup> recycled/reused per 100m <sup>2</sup> floor area	7.5 m <sup>3</sup> /100m <sup>2</sup>
M <sup>3</sup> landfilled per 100m <sup>2</sup> floor area	5.0 m <sup>3</sup> /100m <sup>2</sup>
Percentage recycled/reused/stockpiled for recycling	60%
Percentage to landfill	40%

The Key Performance Indicators for the house build project are shown below (left). 60% of the waste material in the skips was reused or recycled. The main material that was landfilled was plastics and other general waste (including food waste). The treated timber was stockpiled for trialling as a fuel in a consented, high-temperature furnace.

## Waste Composition and Destination (m<sup>3</sup>)



## Difficulties

- The existing driveway was removed and the contractor took the concrete to cleanfill for quarry rehabilitation prior to the waste reduction project starting. If the concrete had gone to the sorting site, it would have been crushed and recycled. **Tip: Ask your contractor where they are taking your waste. Ask them to use a site which recovers the materials for reuse/recycling.**
- Through the Target Sustainability House Building Project, a letter was sought from the local council building inspectors allowing Pink Batt off-cuts to be left in the ceiling. Unfortunately, this letter was not received until this house was complete. The Pink Batts were disposed of in the skip. **Tip: Use off-cuts of insulation in the internal walls or leave them in the ceiling (check this with your local council first).**
- The carpet layer was asked to keep all carpet off-cuts aside. Larger off-cuts could be left in the house as mats. Both Terra Nova (Waste Exchange) and the carpet supplier were contacted, but no reuse/recycling option was found for the small off-cuts. The small off-cuts of carpet eventually went in the skip. **Tip: Some suppliers will take back off-cuts of carpet for recycling. Contact your supplier to see if they offer take back schemes for carpet for recycling or reuse.**
- 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 for the skip.**

## Future Plans - Orange Homes

- Now that Orange Homes have an approval letter from the local council building inspectors, they will look into leaving off-cuts of Pink Batts in the ceiling.
- Orange Homes are looking into getting lockable lids for the skips they use in residential areas to prevent unauthorised dumping in the skips.
- Orange 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.targetsustainability.co.nz](http://www.targetsustainability.co.nz)

The REBRI guides are available at [www.rebri.org.nz](http://www.rebri.org.nz)