

AMI Stadium - East Stand Development Construction

VBase

Introduction to the Project

This waste reduction case study demonstrates that with careful on-site and off-site waste sorting, 77% of construction waste can be recovered for reuse and recycling.

Client: VBase

Site: AMI Stadium - East Stand

Location: Waltham, Christchurch

Project Manager: Prodirections

Construction Contractor: Fletcher Building

Waste Contractor: Waste Management

VBase signed a Memorandum of Understanding with the Christchurch City Council to participate in this Target Sustainability project. The objective of the project was to reduce waste going to landfill and cleanfill.



AMI East Stand Development © Copyright

Construction Waste Recycling

With the help of Waste Management, Fletcher Building achieved the following results:

Waste Materials	Reuse and Recycling	Disposal	Comments
Type	Off-site (tonnes)	Off-site (tonnes)	
Recyclable construction waste	95.55		This was material from the general waste skips which was separated over a sort line. Plastics were sorted for recycling and untreated timber was used as a fuel in consented industrial boilers.
Concrete	79.00		Concrete was collected in a dedicated skip. It was crushed off-site and used as an aggregate for roading projects.
Timber (untreated)	71.32		Untreated timber was collected in a dedicated skip. It was chipped for use as a hog fuel for consented industrial boilers and as a feed stock for processing into wood pellets or calf bedding.
Steel	42.06		Steel was collected in a dedicated skip. It was sent to a scrap metal dealer for recycling.
Co-mingled recycling (cardboard, soft plastic, polystyrene)	6.48		Co-mingled recycling was collected in a dedicated skip. It was sent to the Trans Pacific Industry Group Ltd recycling facility where it was separated and sent for recycling.
Plasterboard	18.06		Plasterboard was collected in a dedicated skip. It was crushed and reused for soil conditioner for horticultural seed germination.
Paper (wheelie bin)	1.60		Paper was collected in dedicated wheelie bins, and was sent for recycling.
Mixed recycling (wheelie bin)	2.16		Plastic bottles and cans, collected in dedicated wheelie bins, were taken to the material recovery facility in Parkhouse Road for sorting and then sent for recycling.
General waste (wheelie bin)		3.74	General waste which included food waste and food wrappers from workers lunch waste was sent to landfill.
Hardie board		7.34	Hardie board was collected in a dedicated skip, and was sent to landfill as it was not recyclable.
General waste		83.01	This was material from the general waste skips that was separated over a sort line, but could not be recovered for recycling. It included treated timber.
TOTAL (TONNES)	316.23	94.09	
Percentage	77%	23%	

NB: The figures in the table include actual and estimated tonnage. The wheelie bin weights are estimates based on averages from other collections and trials, multiplied by the number of bins emptied. These figures do not include pallets sent for reuse/recycling.

Construction Waste Recycling

Fletcher Building aimed to reuse/recycle as much of the materials as they could. They achieved 77% reuse/recycling of the material off-site and recovered over 300 tonnes of materials for reuse and recycling.

Fletcher Building did the following on-site to achieve these results:

- Prepared a waste management plan with waste minimisation objectives.
- Inducted all staff and sub-contractors to the waste management plan and the waste management system on-site.
- Gave one staff member responsibility for policing waste management on-site. He checked the bin contamination at the end of each day. Any contamination was removed to the correct waste bin.
- Held regular tool box meetings to remind staff and sub-contractors of how to use the waste system.
- Showed waste results to sub-contractors to keep them engaged.
- Rewarded staff and sub-contractors to reward good waste sorting, e.g. with a pizza lunch.
- Had separate skips for construction waste, steel, untreated wood, concrete, combined recycling (paper, cardboard, soft plastic, polystyrene), plasterboard and general waste.
- Had separate waste, paper and recycling wheelie bins for staff and sub-contractors lunch and office waste.
- Sent pallets back to suppliers for reuse or sent to Pallet Improvements for reuse/recycling.
- Separated materials for reuse on-site, e.g. put timber in neat piles.
- Reused the crushed demolition concrete on-site for new foundations, roading and parking areas.
- Separate skips and bins were clearly labelled.
- Initially sorted materials into small (bucket) skips and then removed these to the central construction waste sorting area. Fletchers allocated one full-time staff member to sort the waste in the smaller bins into the separate recycling and waste skips.

The use of skips and further off-site waste sorting was undertaken to ensure maximum recovery of materials for reuse and recycling. Waste Management provided separate skips and wheelie bins for the separation of different waste streams on-site.

Waste Management collected the general waste skips and took them to Styx Mill Eco-Depot for further materials sorting. Once at the sorting site, all of the material from the mixed skips was sorted and separated. Waste Management compiled waste and recycling information in an excel spreadsheet and sent this information to Fletcher Building monthly.



Bucket skips used to transport waste to the central sorting area © Copyright



Clearly labeled skips for on-site waste sorting © Copyright



Central waste station for non-construction waste © Copyright

Difficulties

- Hardie board recycling was investigated, but no recycling solution was found. Off-cuts were reused where possible, but a large amount was still disposed as general waste. **TIP: where possible minimise and reuse off-cuts.**
- The construction site was over a large number of floors and there were up to 250 people on-site. This can make it difficult to police waste management. **TIP: keep delivering consistent messages about the importance of reuse and recycling on-site, particularly during the final project stages. Write waste management goals into sub-contractors contracts.**

Summary

The AMI Stadium East Stand construction started in June 2008 and was completed in December 2009. The aim of the project was to replace the east stands, which are more than 40 years old and nearing the end of their structural life.

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

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