

Construction
Waste
Resource Pack
June 2022



wao

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Introduction

Welcome

Thank you for coming along to our workshop! The Better Building Working Group was established after the 2018 Wao Summit. Composed of architects, builders, tradies, developers, suppliers, mental health practitioners and zero waste experts, we have set our vision for 2050. Priority actions including better building, zero waste, and mental health and wellbeing.

We hope that you get a lot out of the workshop and bring the knowledge back to your colleagues. If you want to get involved with other passionate individuals and join the group, please get in touch. We are always looking for people to join and help to advance better building in the district.



Feedback

We would love to hear how you found the event by filling out our [feedback form](#). We really appreciate any feedback given to help inform future projects. Every entry goes in the draw to win an all-access pass to next year's Wao Summit.

Survey

Please fill out our quick [survey](#) and help us learn more about the challenges and understanding of C&D Waste in the Queenstown Lakes.

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Share your success

We acknowledge the efforts of many builders, designers, individuals and organisations across the sector who have been working hard on resource recovery and waste minimisation. If you would like to share your successes, lessons learnt or seek advice [get in touch](#).

Keep up to date

These Better Building workshops have been funded by the QLDC Waste Minimisation Community Fund 2021/22. Stay tuned for updates on the BBWG [Facebook Group](#), or get in touch with the team at betterbuilding@wao.co.nz

101: What's The Problem?

What is currently happening?

In our district, there is a growing appetite and awareness from large construction companies to small-scale residential builders to minimise waste on site. With increased environmental awareness from clients, and landfill costs trending up, more builders are choosing to reduce, re-use and recycle on site.

In the Queenstown Lakes District, 242 tonnes of C&D waste is sent to landfill every week, 32% of the district's total waste to landfill.

- 2020 Solid Waste Analysis Protocol

The construction and demolition industry is one of the largest waste-producing industries in New Zealand. C&D waste may represent up to 50% of all waste generated in New Zealand, with 20% going to landfill and 80% to cleanfill.

- BRANZ

Get inspired by builders in our district paving the way to more sustainable sites on the [Better Building Resource Circulation page](#). Connect with Better Building members like Wastebusters to make the shift from the traditional take-make-dispose mindset. A community enterprise with more than 20 years' zero waste experience, Wastebusters offers practical resource recovery solutions, and waste minimisation advice.

What are the diversion options in the District?

The Better Building Group has compiled a list of Resource Diversion Options for both [Wānaka](#) and [Queenstown](#). These lists are "living documents" that get updated with new information as the reuse, exchange, return and recycling market develops further. If you have any suggestions for the list, please contact us.

Examples of Site Best Practice



Repurposing timber into bike jumps, by Dunlop Builders.



Example of material recycling information board.



Send your pictures of best site practice to betterbuilding@wao.co.nz



Example of an onsite recycling segregation station by Dunlop Builders.



Salvaged bricks at Lakeview Deconstruction, QLDC.

102: Setting Up A Plan

Key Workshop Takeaways

- Education is key to achieving minimisation goals and high diversion targets. Start with a resource management policy that is cascaded within the company and across to suppliers and subcontractors. Introduce refreshers, site toolbox talks.
- Everyone is responsible for resource management, however having a dedicated individual or team to take care of resource recovery on site is essential for good waste minimisation outcomes.

Better Building Tip

Sort and store timber offcuts by the saw benches for reuse, e.g. for stud centres, dwangs etc.

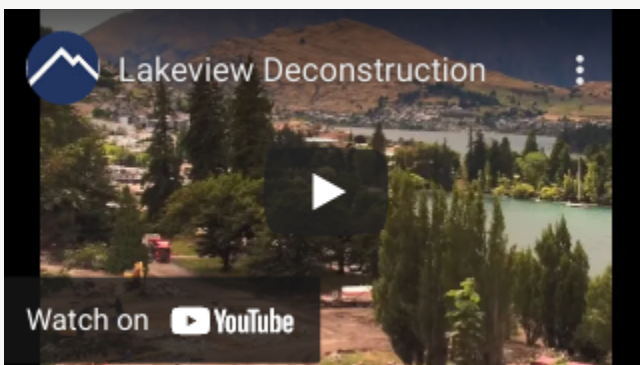
Case Studies Videos



[Hāwea Grove Series- Episode 6 Waste Management](#)



[Hāwea Grove Series- Episode 13 Waste Diversion](#)



[Lakeview Deconstruction Case Study](#)



[Hamilton example of onsite waste minimisation](#)

Better Building Tip

Set up labelled fadges to recycle polystyrene, clear plastic wrap, and cardboard. Audit materials regularly to ensure quality recycling.

Construction Waste Resources and References

Guides & Case Studies

[Wastebusters Better Building resources](#)

Explore case studies on reducing construction waste, building a home without a skip, and resource recovery templates.

[QLDC Construction and Demolition](#)

[Resources](#): Find case studies and links to useful resources in the district.

[Auckland Council "Make Most of the Waste": Building Out Waste Guide](#)

A guide for developers and building contractors for minimising waste on construction projects. Check out their [Construction Waste Case Studies](#) for examples.

[Hamilton City Council "Fight the Landfill": Building and development](#)

Calculators, guides and videos on waste reduction and resource recovery.

[New Plymouth District Council: Construction Waste](#)

Tips, info and guides on construction waste. Check out their [guide for a reduction plan](#).

[BRANZ Sustainable Building: Reducing Building Waste](#)

Resources, plans, guides for reducing, reusing and recovering materials. Check out their sections on [designing for waste minimisation](#) and the [resource efficiency](#) for using materials, energy, time and money more effectively.

Deconstruction

[Padlet construction & De-Construction Guide](#) to on-selling, up-grading, or up-cycling materials.

[BRANZ Demolition](#)

Guides and case studies to plan for deconstruction.

Useful Templates

[Site Resource Management Plan](#) - the same as the one in this booklet, also available to download.

Resource Diversion Options for [Wānaka](#) or [Queenstown](#). Download the pdf and place in your site office for all to refer to.

[Resource diversion plan template](#). Filling this out is a good way to understand your resource management practises and who is responsible on site for each material.

[Contract Agreements Clauses](#) REBRI - examples. Use this to share your overall waste goals with subcontractors and suppliers.

[Sample Resource Management Plan](#): a document you can update as the project progresses to reflect waste transfers, diversion options, new suppliers and site practices.

Download the [New Zealand Recycling Symbol](#) signs for separating construction materials on site.



Site Resource Management Plan

Apply to a single project, or for your entire company plan.

Is it a project or company plan? (circle)

Project Company

Contact Details

(Resource management champion)

Contact Name:

Company Name:

Phone:

Email:

Project Details (if applicable)

Project Name:

Site Address:

Project Type (circle)

New Construction | Renovation | Deconstruction | Other

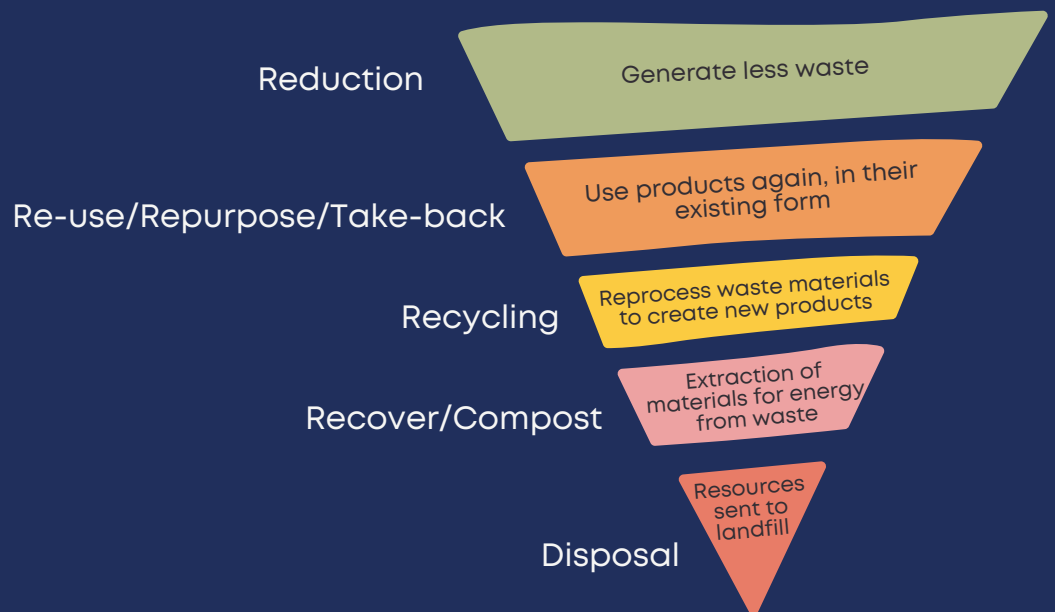
(Specify):

Project Size (m²):

Project Start:

Project Finish:

Zero Waste Hierarchy



Purpose of your site resource management plan

Describe what you are trying to achieve, e.g. "prefer suppliers who have waste minimisation / environmental plans / credentials" or "use construction methods that allow for deconstruction"



What are your SRMP targets?

Enter the metrics applicable to you. There are 3-monthly columns so you can track your progress.

Date: Date: Date: Date: Date:

Measure	Target	Actual Start point	Actual 3 months	Actual 6 months	Actual 9 months	Actual 12 months
Total Project / Company waste by weight (kg) less than:	(kg)					
Total Project / Company waste by volume (m ³) less than:	(m ³)					
Total Project / Company waste per sqm of floor area less than:	(kg)					
Total Project / Company Recycling Rate by Volume (%):	(m ³)					
Total Project / Company Recycling Rate by weight (kg): <i>See see NPDC guide OR BRANZ guide</i>	(kg)					

Estimated Types and Amounts of Waste Generated

Enter approximations as applicable. A few examples of materials have been added that are easier to collect data for. Insert other materials you may want to measure.

Measure	Estimated Volume (m ³)	% of total (m ³)	Estimated Weight (kg)	% of total (kg)
Plasterboard				
Packaging/plastics				
Metals				
Concrete & Masonry				
Cardboard & Paper				
Polystyrene				

Tips

Look back on previous jobs and see how many skips you used on a comparable job.

Focus on materials you use a lot of, e.g. plasterboard, metals, plastic packaging, etc.

Ask your waste provider for information on volume/weight of material to landfill.



Resource management & minimisation actions

(tick as applicable)

Design

- Encourage designers and clients to use standard product dimensions (e.g. 600 or 1200mm increments, standard door and window sizes).
- Use prefabricated products to reduce onsite handling, reworking and offcuts.
- Specify untreated timber in all allowable applications to enable future recycling and lower environmental impact.
- Provide detailed plans and instructions to estimators, workers and contractors to improve accurate material takeoffs and avoid reworking. Refer to [BRANZ Designing Out Waste](#).

Material selection

- Select materials based on durability, low maintenance and low environmental impact (including being recyclable or including recycled content). Refer to [BRANZ Planning Product Selection](#).

Material estimates

- Review and minimise waste allowances for material quantities.
- Request credit from suppliers for unused product in good condition.

Delivery & storage

- Schedule "just in time" deliveries where practical to avoid materials getting damaged.
- To avoid on-site damage to materials, store all products securely and covered (e.g. with reusable tarpaulins).

Unauthorised Dumping

- Only use skips for materials that cannot be reused or recycled.
- Waste bins kept away from public view and access whenever possible.
- Recycling sign prominently displayed on site using recycling symbol and stating 'We are recycling on this site. NO UNAUTHORISED DUMPING' or similar.
- Cover skip or bin to help reduce dumping and windblown litter.

Resource management (general)

- Put incentives in place for workers and subcontractors to achieve SRMP targets.
- Store surplus materials for use on future projects.
- Store useful left-over materials such as paint, floor coverings, fixtures and fittings for the homeowner's future use.
- Encourage staff to be responsible for their own recycling and rubbish by bringing litter less lunches, taking home food packaging, leftovers, newspapers etc to recycle or compost. Organic material could be composted on-site and incorporated into the overall landscaping.
- Ensure materials are securely placed in skip to avoid it escaping into the environment.
- Sort surplus materials onsite for reuse and recycling. Suggested reuse and recycling piles in the order they normally occur are: concrete and masonry, steel, timber products, plastics, insulation, plasterboard, paint tins and cardboard.

Resource management knowledge

- Distribute site resource management plan to all staff and subcontractors as part of tender document, contracts and site induction prior to commencing work onsite.
- Communicate SRMP targets progress to relevant site visitors, subcontractors and staff. See [BRANZ guide](#) on this.

Resource management services

- Compile a list of a preferred resource recovery and waste providers. Ask about supply chains for recyclable material to find out where and how your material gets reprocessed.

Plasterboard

- Keep plasterboard dry and covered prior to use.
- Waste deferral - Clean offcuts can be placed within internal wall spaces, providing the opportunity to recycle them at the end of the homes useful life and also some noise dampening qualities. Offcuts should be cut down or scored and folded 'concertina' style up to four sheets maximum to allow for future wiring. Care must be taken to select wall cavities without insulation, wiring, plumbing or HVAC ducts such as wardrobes, hot water cupboards, stairwells or garages. Place pieces securely to avoid rattling and consider the sequence of lining rooms to ensure vacant walls are available as each room is completed.
- Connect with relevant community groups or social enterprises to find reuse avenues.

Timber - Untreated

- Sorted onsite and re-used as per schedule.
- Connect with relevant community groups or social enterprises to find reuse avenues.
- Small offcuts unsuitable for reuse can be used for firewood.

Timber – Treated or Engineered

- Sorted onsite and re-used as per schedule.
- Connect with relevant community groups or social enterprises to find reuse avenues.

Concrete & masonry

- Small quantities of inert concrete/masonry waste may be used on site for landscaping, backfill, under walkways or driveways.
- Use a hardfill skip is for concrete and masonry so it can be diverted from landfill.

Packaging

- Work with suppliers to limit or take back packaging.
- Flatten cardboard and separate for recycling.
- Separate and store clean clear LDPE film and shrink wrap for recycling.
- Separate and store clean expanded polystyrene for recycling.

Insulation

- Use excess insulation in the ceiling space, especially at perimeters or any vacant wall cavities or gaps.
- Use larger polystyrene sheets under concrete floors and driveways or as a protective lining behind retaining walls or underground walls.
- Work with installers to remove all surplus insulation for reuse and/or recycling.

Metals

- Recycle metals through the transfer stations, or directly with a scrap metal dealer.
- Reuse large sheets of roofing iron on future projects.
- Connect with relevant community groups or social enterprises to find a reuse avenue for larger sheets of roofing iron.

Hazardous material

- Store paints, stains, solvents, adhesives, sealants, treatments etc for reuse on future projects.
- Excess paint can be recycled. Contact supplier for options, or use paint recycling programmes run by [Resene](#) (Queenstown) and [Guthrie Bowron](#) (Wānaka).
- Divert water runoff from sediment, unset concrete etc from waterways and stormwater drains and allow to settle onsite. If necessary, use channels or collection ponds, hay bales, filter fabrics etc to help filter and settle any runoff.
- Contain hazardous substances such as liquid paints, stains, timber treatments, and solvents and dispose of responsibly.
- Work with paint contractors to get proof of proper waste disposal.
- Use benign paints, stains, caulks and solvents where possible to minimise hazardous wastes onsite.

103: Designing Out Waste



Presentations

- [Tim Bates Research Paper](#)
- [Introduction to Circular Design Workshop](#)

Resources

Zero Waste Design & Designing out Waste

- [Designing Out Waste](#): (www.modular.org)
- [Construction & Demolition Waste Best Practice Strategies - Zero Waste](#) (zerowastedesign.org)
- [Building Out Waste 2021 – Tackling waste in construction and demolition](#) (YouTube)

Examples of Circular Strategies

- [BAMB - Buildings As Material Banks](#) (BAMB2020)
- [Business Guide to Circular Construction](#) (greencycle.si)
- [Learn from Nature: High Performance Materials](#) (AskNature)

What's Currently Happening in New Zealand

- [Circular Economy Model Office Guide](#) (sustainable.org.nz)
- [Architects use the Circular Economy Model Office](#) (Sustainable Business Network)
- [NZ CleanTech for the World: The New Waste to Value](#) (callaghaninnovation.govt.nz)
- [Mussel shell house cladding could help cut landfill waste by half](#) (stuff.co.nz)
- [Fletcher Building](#) (xlabs.nz)

Workshop Resources & References

- [Circular Design](#) (ellenmacarthurfoundation.org)



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