



CONSTRUCTION WASTE REDUCTION PLAN: A GUIDE



"Protection of the environment is an area our industry must do better in. As a business we aim to be leaders of our industry. We put an enormous emphasis on protecting our people. Now it is time the environment gets the same focus and energy.

As a company we know we can achieve better environmental outcomes if we plan and implement effective waste management processes. We have seen when waste reduction is a key focus from the outset and supported by all involved, a significant reduction in construction waste is achievable. When we have motivated clients, designers, contractors, suppliers and manufactures, we can reduce waste sent to landfill by 40-60%, if not more.

The New Plymouth construction sector can be leaders in the waste reduction battle. If we make process changes, adapt to the evolving requirements and best practice principles, and focus our energy, our businesses, our community, and our environment will benefit."

CHRIS PYE, OPERATIONS MANAGER, CLELANDS CONSTRUCTION

WHY REDUCE CONSTRUCTION WASTE?

New homes and commercial buildings are at the centre of New Plymouth's great construction boom.

On the many construction projects in our region some great steps are being taken to reduce waste, with efforts to design out waste; better manage and reduce wastage of materials; save materials for use on other projects or to sell or donate to others; or to recycle, chip or compost unusable building materials. Client expectations for waste reduction are also growing, alongside interest in more sustainable, low-carbon products and services.

Despite these expectations and increased costs and shortages in many building materials, construction and demolition materials make up roughly half of New Zealand's total landfill waste, and 80 per cent of waste going to clean fill. On average, a new home can generate four tonnes of waste. This is costly for construction companies and clients, as well as placing strain on the environment and resource supplies.

Construction and demolition waste is a complex waste stream, made up of a wide variety of materials that are produced on time and cost-sensitive projects, where space is often limited. Competition can be fierce, with cost often the deciding factor in winning work. A lack of sorting infrastructure and markets for reused materials have also supported current norms around waste in the industry.

But with good planning and management, supportive reuse and recycling infrastructure in place, and education and promotion of good practice, waste can be dramatically reduced.

Taking steps to reduce construction waste can bring a wide range of benefits for your company:

SAVE MONEY

- Save on waste disposal costs (particularly as landfill costs rise annually from July 2021).
- Make money from selling usable materials or fixtures, or recycling scrap metal.
- Reduce your costs in needing to buy less new materials for upcoming projects.
- Reduce costs for purchase and transport of wasted materials.
- Avoid possible non-compliance costs and delays.

WIN WORK

- Win contracts for projects that specify waste reduction requirements, or attract clients who want to "do the right thing".
- Improve client satisfaction and your company image, and encourage repeat business.
- Help attract and retain employees.

SUPPORT TO REDUCE WASTE

New Plymouth District Council (NPDC) wants to help the construction sector to achieve these benefits and reduce waste.

In 2022 NPDC will construct a Commercial Waste Sorting Facility on Colson Road in New Plymouth, which will sort usable, recyclable and compostable building materials from mixed skips. This facility will help keep valuable materials out of landfill, while saving you time in separating materials on-site if this is not feasible.

As well as this new sorting infrastructure, we are asking for the help of New Plymouth's designers, builders, tradies, contractors and demolition companies to reduce and better manage waste on construction projects, from design through to the completed build.

CONSTRUCTION WASTE REDUCTION PLAN

A new requirement for commercial construction projects in New Plymouth

From August 2021 anyone applying for a building consent for non-residential building work with an estimated value of \$500,000 or higher must submit a site waste management and minimisation plan to NPDC for approval. This is a new requirement of the New Plymouth District Council 2019 Solid Waste Management and Minimisation Bylaw.

NPDC provides a Construction Waste Reduction Plan template on our website, which is issued to all relevant applicants after submitting a building consent application. The template is **available in Excel and Word**, so you can choose what format best suits your needs.

HOW TO COMPLETE THE NPDC CONSTRUCTION WASTE REDUCTION PLAN

Completing the Construction Waste Reduction Plan has four steps: two before your build begins, and two after your build is completed.



BEFORE CONSTRUCTION:

Complete steps 1 and 2 BEFORE the start of construction, to set goals and guide your minimisation and management of waste.

1. WASTE REDUCTION PLAN

What steps will the designer and construction company take to reduce waste throughout the project?

2. MATERIALS WASTE MANAGEMENT PLAN

What types of waste building materials do you expect to produce from the project, where will they go, and what quantities do you expect will be reused, recycled, composted, and disposed of?

Complete steps 1 and 2 in the NPDC Word or Excel template and submit your saved plan to commercialwaste@npdc.govt.nz before getting underway with your project.

AFTER COMPLETION OF CONSTRUCTION:

3. WASTE RECORD

What actual quantities of each type of waste building material were produced throughout the build, and what happened to them (were they reused, recycled, composted, sent to clean fill, or sent to landfill)?

4. WASTE REVIEW

What went well and not so well in reducing waste on this project, and what will you do in future projects to further reduce waste?

Add content for step 3 and 4 to your already saved template and submit the final version to commercialwaste@npdc.govt.nz within three months of completing your build.

During construction, you will need to:

- Keep accurate records of all types and quantities of waste sent off site, to which location/provider, the weight or volume, and the cost paid or income generated.
- Ensure that a copy of the **Waste Reduction Plan** (or a list of your set waste goals and waste reduction requirements in your own format) is kept on-site, and that all contractors know where it can be found.
- Educate everyone involved in the build on the plan goals through their contract terms, site inductions, site meetings, and other methods.
- Monitor progress and ensure that the Waste Plan is complied with, including by subcontractors.
- Monitor and review how the plan is being implemented throughout the project.



For the **Waste Record** (step 3), weights should be provided by your waste collection contractor in a report, or on their invoices or receipts. If you only have volume estimates of different waste materials, you can convert this to weights using the table on page 16 of this Guide, or in the conversion table at the bottom of step 2 and 3 of the Excel template.

While it will take some time to establish your waste reduction and data collection systems initially, your team will adapt as you make waste reduction part of your culture across all projects and sites.

“Livingstone Building is on a journey to change the way we manage waste across all our construction-sites. Change starts with culture - working with our people across all levels to understand the necessity of changing how we manage waste, with the end goal of being able to minimise our effect on the environment.

The value added to our business is not just limited to a more positive impact on the environment, but cost savings on waste disposal, and better outcomes for our clients across all our sites.”

BLAKE MORGAN, REGIONAL MANAGER, LIVINGSTONE BUILDING



A GUIDE TO REDUCING CONSTRUCTION WASTE

There are simple ways you can reduce and better manage waste on all stages of construction projects. To learn more, see the national Reducing Building Material Wastes (REBRI) website www.rebri.org.nz.

TIPS FOR REDUCING CONSTRUCTION WASTE

PLAN TO REDUCE WASTE FROM THE START OF YOUR PROJECT:



1. A list of possible goals for reducing waste is listed in step 1 of the template - the **Waste Reduction Plan**.
2. Make someone responsible for on-site waste reduction and management, and ensure that's recognised in their role.
3. Include waste reduction requirements in your contracts and subcontractor agreements.
4. Have accurate cutting lists and quantity surveys to avoid over-ordering and product wastage. Order just-in-time delivery of products to reduce the storage time on-site and the potential for damage.
5. Assess what waste types you will have from the project; which could be separated for reuse, recycling and composting; and the quantities you may be able to save (record this in step 2 of the template, the **Materials Waste Management Plan**).

SET UP A CLEAR WASTE SEPARATION SYSTEM ON-SITE:



6. Set up separation bins, skips or piles for recycling and reuse, and clear signage for each. A single waste storage area is ideal - many smaller bins over the site encourages people to use the nearest bin to where they're working, and to mix up waste types, leading to contamination and more landfill waste.

Different waste types occur at different times in the project, so you may be able to plan your waste separation system around this.

- Concrete, steel and timber waste generally occurs during foundations and framing.
- Cladding, plasterboard, electrical cable and insulation waste occurs during the next phase.
- Cardboard, plastic wrap, paint tins and other packaging waste generally occurs during fit-out.



GET STAFF, CONTRACTORS AND SUPPLIERS ON BOARD:



7. Brief all staff, contractors, subcontractors and managers on your waste separation system, and what you expect from them. Include this in your induction material and other communications. Encourage staff to bring their own reusable water bottle, coffee cup and lunchbox with them too, as another simple way waste can be reused onsite.
8. Make waste a regular item on toolbox and project management meetings, and provide updates to clients.
9. Talk with suppliers about the latest methods for product installation so that you can reduce off-cuts, mistakes and damage, which create waste during construction.
10. Monitor your bins/piles throughout your build to make sure materials are being separated for reuse, recycling and recovery. Store them in different signed skips, bins or piles, and cover weather-sensitive materials if possible. Manage on-site storage to optimise material quality and avoid wastage.
11. Whenever you can, reuse off-cuts, scraps and usable waste materials. Keep them in a handy place until the end of the project. If they're not used on this project, try to utilise them on an upcoming project, or donate or sell them to a local building reuse provider (see page 14).
12. For anything that can't be reused on-site or for a future project, contact companies in the Reuse and Recycling Directories (page 14-16) to arrange drop off or collection.
13. Have incentives like a morning tea or Friday shout if waste reduction goals are achieved.

THE WASTE HIERARCHY APPROACH

Avoiding and reducing the amount of waste that's produced on a build is the most efficient and cost effective way to manage waste, as well as the most environmentally preferable.

Throughout design and construction aim to **avoid** creating waste in the first place wherever possible, through good design, ordering and construction management. Then work to **reduce** the amount of waste you generate at all stages of the build.

The second priority is then recovering any usable resources, so they can be used again on other building projects by your company or others, saving costs and resources.

Next, work to divert any recyclable materials so they can be made into new products, or to recover organic materials for chipping or processing into compost.

This order of priority is reflected in the 'Waste Hierarchy' model.



PRIORITY MATERIALS FOR REUSE, RECYCLING AND RECOVERY

As part of your **Materials Waste Management Plan** (step 2), materials should be prioritised in order to reduce waste to landfill on a build.

Any materials which can be reused, recycled or composted, highlighted below in yellow, should be separated and kept out of landfill or 'general waste' bins. Materials for reuse or recycling need to be stored and handled well so that their value is maintained.

A tick ✓ indicates the best recommended option/s for each material, while 'A' indicates an alternative, if the preferred method is not available or feasible.

Avoid sending materials with an X to landfill wherever possible. See the tick ✓, A, and notes for options other than landfill disposal.

KEY

- ✓ Preferred/required
- A Alternative (where the preferred option is not possible)
- X Avoid wherever possible



MATERIAL	REUSE	RECYCLING	COMPOST/CHIPPING	CLEAN FILL	LANDFILL	NOTES	
Whole structures for removal	✓				X	Sound structures should be considered for intact removal to a new site for reuse wherever possible.	
Fixtures, fittings, finishings, strip out items	✓	A			X	Any deconstruction should start with a strip out of usable fixtures and fittings that can be reused. Care should be taken to remove items and materials in a way that preserves their value.	
Doors	✓	A (Metal)	A (Untreated Timber)		X		
Windows	✓	A			X		
TIMBER							
Timber-native: Usable lengths	✓				X	Remove native timbers in such a way that maximum value is retained. Only uneconomic lengths should be sent for chipping.	
Timber-native: Small offcuts, sawdust	✓		✓		X	Offcuts can be donated for firewood, or shavings/sawdust for composting.	
Timber-untreated: Usable lengths, unfinished	✓		A		X	Separate and store timber for reuse (preferred) or chipping.	
Timber-untreated: Small offcuts, sawdust			✓		X	Offcuts can be donated for firewood, or shavings/sawdust for composting.	
Timber-treated: Usable lengths	✓				X		
Timber-treated: Small offcuts, sawdust					✓		
Plasterboard/gib-usable lengths	✓				X		
Plasterboard/gib-small lengths, damaged			✓		X	Non-usable lengths of plasterboard can be sent to a commercial compost facility	
CONCRETE AND MASONRY							
Asphalt		✓			A	X	Sort by type for milling and recycling.
Bricks	✓				A	X	Usable bricks can be sold or donated for reuse. Broken brick should be sent to clean fill.
Concrete		✓				X	Concrete should be sent for crushing and reprocessed for new uses.
Rocks	✓	✓				X	Rocks can be donated for landscaping projects, or crushed and reused at a local quarry.
Tiles	✓				A		Usable tiles can be sold or donated for reuse. Broken tiles can be reused for mosaics, or sent to clean fill.
MISCELLANEOUS							
Building wrap, shrink wrap (pallets)	✓	✓				X	Building wrap and shrink wrap/plastic film can be reused between projects, or sent for recycling.
Cardboard		✓	A			X	Cardboard should be recycled. If soiled, cardboard can be composted.
Carpets, carpet tiles	✓					A	Usable carpets should be donated for reuse, where they can be cut to remove damaged or worn areas.
Glass bottles		✓				X	Glass needs to be separated by colour for recycling, with lids removed.
Glass-double glazing	✓	✓				X	Double glazing units in good condition-reuse. Double glazing (failed)-recycle.
Glass-plate glass from windows and doors	✓	✓				X	
Insulation	✓	✓	A (Wool)			A	Insulation can be donated or sold for reuse. Pure wool insulation can be given back to the manufacturer or sent to a commercial composting facility. Some insulation manufacturers offer recycling services for their customers. Only damaged insulation made from synthetic fibres should go to landfill.
Metal (aluminium, brass, copper, steel, cable, mixed, zinc, cast iron)	✓	✓				X	Remove any metal fixtures and fittings carefully to retain value for reuse (first preference) or recycling.
Paper		✓	A			X	Paper should be recycled. If soiled, paper can be composted.
Paint		✓				X	Some manufacturers have take-back schemes for paint, such as the PaintWise scheme at Resene.
Paving	✓				A	X	Usable paving can be sold or donated for reuse. Broken paving can be reused for landscaping projects, or sent to clean fill.
Plastic containers (1, 2, 5)		✓				X	All clean plastic containers of type 1, 2 and 5 plastics should be recycled.
Polystyrene		✓				A	Discourage suppliers from using polystyrene packaging, or ask them to take it back. Recycling for polystyrene is available in Hāwera, or can be requested from a local waste collector.
PVC pipe, plumbing components	✓	✓				X	Some manufacturers have take-back schemes for PVC pipe, such as Marley, Iplex Pipelines and RX Plastics.
Soil	✓		✓			X	Retain and replace soil after construction so that existing nutrients can be returned back to the site. Or donate uncontaminated soil for private clean fill in gardens. Soil and green waste can also be sent to a green waste drop off or commercial composting facility.



For more information and downloadable guides on options for each of these material types, visit the BRANZ website:

www.branz.co.nz/sustainable-building/reducing-building-waste/assessing-waste/recycled

REUSE DIRECTORY

Local options for donating or selling used building materials are listed below. We encourage contacting the provider before dropping off any materials, or to arrange pick up from your site. Donation and sale of items can also happen through online groups such as the Recycled Building Materials Taranaki Facebook group.

Please let us know of any further reuse options to add to this Directory, by emailing commercialwaste@npdc.govt.nz.

Reuse provider	Bricks, pavers, tiles	Carpet, carpet offcuts	Corrugated iron, roofing	Fixtures, light fittings	Insulation	Untreated timber (Usable lengths)	Timber-treated (Usable sizes)	Tools, fixings	Windows, frames, doors
Building Traders 37 Katere Rd, Waiwhakaiti, New Plymouth P 757 9214, M 027 523 8006 www.buildingtraders.co.nz	✓	✓	✓	✓	✓	✓	✓	✓	✓
Revive Building Recyclers 26 Tarahua Rd, Vogelton, New Plymouth P 759 0906 M 027 358 5862 www.revivebuildingrecyclers.co.nz/	✓		✓	✓		✓	✓	✓	✓
The Junction Colson Rd, New Plymouth P 0508 238 837 www.facebook.com/TheJunctionTaranaki	✓	✓	✓	✓	✓	✓	✓	✓	✓
Trade Me www.trademe.co.nz/building-renovation	✓	✓	✓	✓	✓	✓	✓	✓	✓
Predator Free Taranaki (for construction of pest traps) P 0800 736 222 www.trc.govt.nz/environment/working-together/pf-taranaki2050							✓		
The Mens Shed 38 McLean Street, Strandon, New Plymouth M 021 237 7168 https://menzshed.org.nz/north-taranaki							✓		
After Disaster 223 Devon St West, New Plymouth P 769 9230 www.facebook.com/AfterDisasterOffice/		✓							

RECYCLING DIRECTORY

Local options for collection or reprocessing of recyclable materials into other products are listed below. This should be used as a guide only, and will be updated on the NPDC website when new markets are developed.

Please let us know of any further recycling options for construction materials to add to this Directory, by emailing commercialwaste@npdc.govt.nz.

RECYCLER/ COLLECTOR	Hard fill (concrete, rubble, non-usable tiles & bricks)	Plasterboard / gib	Untreated timber, pallets	Metals, cables
Jones Quarry Ltd 25 Oropuriri Rd, Waiwhakaiho, New Plymouth P 06 755 0013 www.jonesquarry.co.nz/services/concretereycling	✓			
Taranaki Concrete Recyclers Rifle Range Rd, New Plymouth M 027 896 4288	✓			
Envirowaste Pick up P 0800 240 120 www.envirowaste.co.nz	✓	✓	✓	✓
Waste Management Pick up P 06 757 8381 www.wastemanagement.co.nz	✓	✓	✓	✓
Return to Earth Egmont Rd, Waiwhakaiho, New Plymouth www.return2earth.co.nz			✓	
Energy City Recyclers Cnr Craig Pl & Hurlstone Dr New Plymouth P 06 758 1140 www.energycityrecyclers.co.nz				✓
Global Metal Solutions 7 Catalina Pl, Bell Block, New Plymouth P 06 755 2688 www.gmsgroup.nz/new-plymouth				✓
Molten Metals Recycling 65 Centennial Dr, New Plymouth P 06 751 5367 www.moltenmetals.co.nz				✓

RECYCLER/ COLLECTOR	Plastic wrap - clear	Plastic wrap - white/ coloured	PVC pipe	Mixed recycling (Cardboard, cans, plastics 1, 2, 5, paper, tins)	Lights (tubes, bulbs)	Polystyrene
General Recycle Ltd 70 Kerrs Rd, Wiri Auckland P 09 269 8688	✓					
OJI Pick up P 09 633 0600 www.ojifs.com	✓					
Reclaim Auckland, Wellington P 0800RECLAIM	✓					
Waste Management Pick up P 06 7578381 www.wastemanagement.co.nz	✓			✓	✓	
Plasback P 0508 338 240 www.plasback.co.nz		✓				
iPLEX Pipelines P 0800 800 262 www.iplex.co.nz/pvc-recycling			✓			
Marley NZ Ltd P 09 279 2799 www.marley.co.nz/about-us/sustainability/recycling-policy			✓			
RX Plastics Ltd P 0800 288 558 customerservice@rxplastics.co.nz			✓			
Envirowaste Pick up P 0800 240 120 www.envirowaste.co.nz				✓	✓	✓
Interwaste Pick up P 09 250 0011 www.interwaste.co.nz					✓	
New Plymouth Transfer Station Colson Rd P 06 758 7601				✓		
Egmont Refuse & Recycling P 06 278 6170 19 Scott St, Hāwera	✓					✓

VOLUME TO WEIGHT CONVERSION CALCULATOR

Use the table below to convert volume measurements of different waste types into estimated weights (in kilograms), for your **Materials Waste Management Plan** (step 2) and **Waste Record** (step 3).

MATERIAL	TYPE	AVERAGE DENSITY (KG/M ³)
CARDBOARD	Cardboard	38
CARPET	Carpet tiles	200
	Broadloom	180
CONCRETE/MASONRY	Rubble	1048
	Concrete	900
	Tiles	1500
GLASS	Glass	411
HAZARDOUS WASTE (e.g. Asbestos)	Asbestos	360
METALS	Metal	63
OTHER WASTE	Insulation	100
	Linoleum	350
	Mixed/other	225
PLASTERBOARD	Plasterboard	238
PLASTICS	Plastic - Hard	72
	Polystyrene	21
PAPER	Paper	38
SWEEPINGS	Sweepings	208
TIMBER/WOOD	Timber	178
	Wood sheet	200





Phone: 06-759 6060

Address: 84 Liardet Street, New Plymouth 4342

Postal address: Private Bag 2025, New Plymouth 4340

Email: commercialwaste@npdc.govt.nz

newplymouthnz.com/constructionwaste