

Waste Reduction – HOME RENOVATION

This guide provides good-practice guidance to reduce construction and demolition (C&D) waste during home renovation. The guide is part of the REBRI series aimed at reducing the amount of C&D waste that ends up in landfills and clean fills around New Zealand.

The aims of the guidelines for home renovation are to:

- assist homeowners to consider how and why waste is created as a result of their renovation project
- promote good planning and project design that focus on reducing materials use and materials wastage
- promote the reuse of building materials and the recycling of building waste
- foster environmental awareness.

The guidelines cover:

- planning your renovation – the big picture
- detailed design and planning
- building material and product selection
- demolition
- recycling and reusing building waste
- sorting waste for recycling and reuse
- reducing waste during construction
- links, resources and information.

The waste issue

Waste is generated on building sites during each phase of the building life cycle. Evidence suggests that C&D waste may represent up to 50% of all waste to landfills in New Zealand and the majority of waste to cleanfills or C&D dumps. That means that up to 1.7 million tonnes of C&D waste is sent to landfills every year and similar amounts to cleanfills.

That's a lot of waste to bury in the ground. Not only is this a waste of good resources, it is also filling up valuable landfill and cleanfill space and contributing to serious environmental problems such as air and water pollution. Increased consumer spending and the relatively low cost of waste disposal means that, unless we take action now, it is a problem that is likely to get bigger.

Waste minimisation is a principle of the Building Act 2004 and must be taken into account by local authorities when undertaking their duties under the Act.

If you added up all the waste from home renovations, they are a large source of C&D waste. The decisions made by home renovators have a major influence on the type and amount of waste from each project. Renovating a structurally sound house is usually more material efficient than starting from scratch so deciding to renovate is a positive decision. Other decisions such as what type of fittings and materials will be used, how much salvage is done and what methods of construction are used will all contribute to waste reduction.



At least 50% of a building waste skip can easily be recycled.

8 top tips for waste reduction during home renovations

1. Plan your project so that waste reduction measures are considered right from the start and for all stages of the renovation from demolition to construction.
2. Select building materials and products that reduce waste such as salvaged/second-hand building materials, are standardised to your house dimensions (to reduce off-cuts), have high recycled content (helping to close the loop) and require minimal maintenance and replacement.
3. Order just-in-time delivery of products to reduce the storage time before renovation (and the potential for damage).
4. Have accurate cutting lists and quantity surveys to avoid over-ordering. Having more product than necessary can lead to inefficient product use.
5. Talk with suppliers about the latest methods for product installation and uses so that you can reduce off-cuts, mistakes and damage that all create waste during renovation.
6. Keep waste materials separate for recycling and reuse. Store them in different skips, bins or piles, and use clear signage so that everyone knows what to do.
7. Set up a single waste storage area – having many smaller bins over one site encourages tradespeople to use the nearest bin (and mix up the various waste types making it harder to recycle).
8. Use online databases, trading sites and trade publications to look for or sell second-hand materials and recycled products – visit www.nothrow.co.nz.

The three Rs: reduce, reuse, recycle

Applying the three Rs of waste minimisation to your practices will lower the volume of waste going to landfill, reduce demand for new materials and conserve precious materials for use by future generations. The three Rs work in a hierarchy:

1. Reduce

Preventing waste from being created in the first place is the best way to reduce waste. The way products are designed, used or installed can prevent wastage in adhesives, packaging, off-cuts, extra finishes or cleaning products.

2. Reuse

Reusing materials as much as possible is the next best way to reduce waste. For building products, this could mean having reusable packaging or creating products that can be reinstalled or used for another purpose after their original use.

3. Recycle

Resources that have reached the end of their useful life and off-cuts of materials should be recycled where possible. Where products cannot be reused, the components or materials should be designed to be recycled at the end of their original use. Of course, recycling materials is not enough. You need to help create a market for recycled resources by designing products or promoting the use of products with high recycled content.

Benefits of reducing waste during renovation

Reducing waste is not just good for the environment. Renovators that reduce waste may also experience the following benefits:

- Reduced cost of waste disposal (recycling is often cheaper than disposal, and reducing waste is free!).
- Income or reduced costs from salvage compared to demolition.

- More efficient use of products = less spending on new materials.
- Reduced home maintenance and running costs.
- Maintenance of houses with heritage or character value.

Planning your renovation – the big picture

So you are considering a renovation project. Perhaps the décor is now out of date, or the house does not suit the needs of your lifestyle. These decisions are personal and are driven by many different aspects of your life. However, deciding whether to renovate and the extent of renovation can influence the amount of waste that will be generated.

When planning your renovation, think of the big picture and how you can reduce waste during the project and during the life cycle of the house. At this early stage of the project, it is important to think in broad terms about which of the following general principles you wish to apply to the project to reduce waste. You can then discuss these requirements and include them in contracts with designers, builders and others that you engage in the project.

At the early stage of the project, consider if minimising waste is a key goal. If so, have you thought about the following?

- Whether building or purchasing a new home is a better alternative to suit your lifestyle.
- Whether you can renovate without making structural changes that require destructive demolition and wastage.
- Maintaining or fixing components rather than renovating or replacing them. For example, does the bench or bath need to be replaced or just resurfaced? Can you change the handles on kitchen joinery to update the kitchen without replacing it?
- Renovating for trends and fashion can be more wasteful in the long run than renovating for maintenance, durability or to increase the environmental sustainability of a house.

Key waste reduction objectives

- Minimising the renovation or demolition work.
- Using salvaged building materials.
- Planning for deconstruction – meaning building parts can be easily removed during the next renovation.
- Using materials that reduce waste during installation or use (that minimise packaging, adhesives, finishes etc.).
- Reducing and recycling waste during construction.
- Using prefabricated components and materials prepared in a factory (such as framing) to reduce off-cut waste on your site.
- Using standardised components that fit the dimensions of your house to reduce off-cut waste on your site.
- Using materials and products that are durable, low maintenance, recyclable or reusable.

The renovation team

Depending on the scale of your project, you may need to involve others in the design, construction or demolition phases. When building a team, it is important to:

- use professionals and registered tradespeople where necessary – by applying their expertise to selection of materials, construction methods and demolition methods, they can help you to reduce waste and possibly save money
- use design professionals (planners, engineers, architects, landscape architects, interior designers) who are committed to reducing construction waste and are prepared to put into practice the recommendations in the REBRI Waste Reduction - Design and Planning guide.
- Use builders and demolition firms who are committed to reducing construction waste and are prepared to put into practice the recommendations in the REBRI Waste Reduction - Construction and the REBRI Waste Reduction – Demolition guides.

Detailed design and planning

A lot of the waste produced during renovation is a result of decisions made at the detailed design and planning stage. For example, if the dimensions of additions are not carefully considered, you may end up with unusable off-cuts of materials. This not only generates waste, it also adds additional costs to your project. Spending time on design is always a good investment, and professional input can be very useful, particularly on more challenging projects.

Whether you have an architect on the team or are doing your own planning and design, the following ideas should be considered to reduce waste. More detailed information is included in the REBRI Waste Reduction - Design and Planning guide.

- Consider how much of your existing house you can reuse in the renovation. Reusing items such as doors, windows and cladding will keep the renovations consistent with the rest of the house and save on waste in the skip. Keep a list of all the parts you wish to keep, and tell the architect, builder and others on your renovation team.
- Reduce pipework lengths and gully traps etc. by grouping wet areas, such as kitchens, laundries and bathrooms close together and placing the hot water cylinder centrally in this group.
- For masonry, roofing, cladding, glazing, ceiling heights, timber framing etc., ensure that the structure's dimensions suit the precise sizing of the off-the-shelf product units.
- Use prefabricated and precut components (i.e. wall framing and roof trusses) to reduce waste from construction of these components on site.
- Ensure your architect produces accurate drawings – clear, comprehensive, accurate documentation will reduce the likelihood of design variations and mistakes by builders.
- Keep records of the design, including good drawings of the location of all services, and leave them with the house when you leave. This will help people doing future alterations, maintenance and deconstruction.
- For electrical services, plan wiring to reduce distances and quantities. Use sub-boards and consider pulse switching and intelligent controls to reduce cabling.
- Choose building techniques that reduce maintenance, fixing or replacing of components.



Prefabricated framing means no waste from off-cuts and mistakes.



In this home renovation, the original windows were reused in the new extension.

Building material and product selection

Your choice of building materials and your choice of supplier can minimise waste during your renovation project as well as over the life cycle of the house.

Building materials are often selected based on lowest cost, aesthetics and short-term needs. However, to identify the most effective materials to use in order to reduce waste, it is important to use a broader set of criteria when choosing materials such as:

- recyclability – can the product or material be easily reprocessed into a different, useful product or material

- resource efficiency – less materials to produce the same product
- salvage and reuse – buying second-hand and ensuring a useful life for the product/material following its original use
- durability – how quickly a product or material will need to be replaced.

Note product and material selection should still be done within the context of New Zealand building standards and regulations.

Use materials that reduce waste

- Second-hand or salvaged building materials. To find out what is available use the Yellow Pages (www.yellowpages.co.nz) for demolition and salvage yards, the Waste Exchange (www.nothrow.co.nz), trading websites or trading publications and classified sections of newspapers. City and district councils may also keep databases of businesses and organisations that deal in second-hand goods.
- Materials and components that are reusable or can be recycled after their useful life in the house.
- Materials with recycled content – this reduces the use of raw materials and helps boost the market for recyclables. To find out what is available use the Zero Waste Buy It Back directory at www.zerowaste.co.nz, the Yellow Pages (www.yellowpages.co.nz) or www.nothrow.co.nz. City and district councils may also keep databases of businesses and organisations that provide recycled content products – see www.branz.co.nz/REBRI_Recycling_Directory.
- Materials with durability consistent with the house's anticipated life – this reduces frequency of replacement.
- Materials that don't need finishes, for example, natural timber ceilings, bricks and tiles, pigmented concrete or plaster or roofing steel with a colour baked on at the mill – this reduces waste associated with finishing products and their packaging.
- Avoid using higher-specification product than necessary (for example, 9 mm plasterboard when 6mm is adequate).
- Prefabricated materials supplied to the specifications of your project. This means that there will be no off-cuts or alterations to the materials on site and will reduce your waste.
- Materials that have recyclable or reusable packaging.



Ward Salvage Yard, Auckland.



Using crushed concrete aggregate as base course is a simple way to use recycled products.

Consider supplier practices

Your choice of suppliers can influence the amount of waste generated during manufacture and retailing of the product as well as during renovation. Some of the more obvious things you may like to look for are suppliers that:

- have waste reduction/environmental plans or credentials
- provide recyclable packaging and/or collect packaging for recycling
- take or buy back substandard, rejected or incorrect orders
- can help identify the material most suitable for a specific job

- deliver supplies in sturdy, returnable pallets and containers and back-haul the empty containers when delivering goods
- reduce packaging waste, for example, by using minimal types and amounts of materials and avoiding unnecessary packaging
- provide information on reuse or recycling of packaging
- provide information on packaging and in sales and technical literature on the percentage recycled content of products.

For more information on what you can expect from manufacturers and retailers who reduce waste, see the REBRI Waste Reduction - Building Products guide.

Demolition

Most items recovered from houses could be reused or can be recycled (depending on markets).

If you've made the decision that some parts of the house require dismantling or demolition, thinking about the following issues will help maximise the amount of material that can be salvaged for reuse/recycling.

Refer to the REBRI Waste Reduction - Demolition guide for details.

- Undertake an initial assessment to determine what parts of the house could be salvaged. Ask a local builder or demolition contractor if you're unsure. This will depend on the ability to remove the materials without damage but also about what is marketable in your area.
- Consider reusing materials in your renovation. Make a list of all the materials and building parts you want to salvage. Give this to tradespeople working on the site to ensure they don't damage or throw these items away.
- If possible, arrange prior sales and collection for reusable and recyclable material (see Recycling and reusing building waste below).
- Dismantle the building parts in the reverse order to construction.
- Use tradespeople with employees and subcontractors trained in deconstruction or dismantling techniques if the job will be complex or if there are high-value items requiring careful removal.



Dismantle good-quality building parts carefully for reuse on your project or for resale (Ward Demolition).



Ward Demolition removing wooden floor boards from a house and salvaging the timber.

Recycling and reusing building waste

The markets for recyclables and salvaged building materials are constantly changing and will depend on local outlets and demand.

- To find markets for reuse and recycling, use the Yellow Pages (www.yellowpages.co.nz) for recyclers and salvaged goods dealers, the Waste Exchange (www.nothrow.co.nz), trading websites such as www.trademe.co.nz and trading publications or classified newspapers.
- Contact your local city or district council for databases of recycling and second-hand businesses or organisations – see [www.branz.co.nz/REBRI Recycling Directory](http://www.branz.co.nz/REBRI_Recycling_Directory).
- Donate good-quality materials to low-cost housing charities, schools and other social services.
- Use your kerb side collection for cardboard and packaging such as plastic. Check with your city or district council for waste types and maximum volumes.

Materials that can easily be salvaged for reuse in original or near original form

This is a guide – confirm current demand with second-hand dealers and recyclers.

- **Brick:** old brickwork with lime-based mortars can be separated – cement-based mortar is more difficult and can result in the damage of bricks during separation.
- **Timber:** engineered wood products (e.g. plywood) treated and untreated lengths, beams, boards, panels, pallets and joinery – as a guide, products that are in demand include:
 - hardwood (lengths greater than 0.6 metres, architectural features, no borer or other damage, preferably nail-free)
 - native timbers (lengths greater than 0.6 metres, architectural features, no borer or other damage, preferably nail-free)
 - lengths of untreated timber greater than 0.6 metres
 - lengths of treated timber greater than 0.6 metres
 - panels of ETP, trellis and other timber products greater than 0.5 square metres.
- **Building materials:** claddings, roofing tiles, insulation etc.
- **Building components:** windows, doors, joinery, electrical and plumbing fixtures and fittings.
- **Trees:** can be removed and replanted.
- **Soil**
- **Landscaping tiles, pavers, blocks, etc.**
- **Paint and other finishing products:** left-over materials can be used on other projects.
- **Carpets and underlay:** can be used as groundcover for planting projects.



Timber salvage (Ward Demolition).

Materials that are recyclable

This is a guide – confirm current demand with recycling operators.

- **Vegetation:** can be chipped or shredded for use as groundcover, mulch, compost.
- **Untreated softwood, native timber and hardwood timber** can be used for:
 - landscaping mulch
 - boiler fuel
 - firewood
- **Plasterboard:** construction off-cuts can be recycled or composted (not demolition board) – keep dry.

- **Polystyrene:** blocks can be returned to the supplier for recycling – put in plastic bags to keep clean and dry.
- **Asphalt material:** separated from other materials, asphalt can be recycled.
- **Concrete, bricks, tiles and concrete block:** can be crushed and used as aggregate and hard fill.
- **Metal:** all types of metals are recyclable and can be mixed together.
- **Plastics:** ensure that different grades are not mixed together and check with local recyclers as to what is recyclable – you may be able to use the council’s kerb side collection.
- **Cardboard:** can be recycled, flatten and keep dry – you may be able to use the council’s kerb side collection.



Disposal of left-over waste and hazardous waste

Only use the municipal landfill or transfer station for waste disposal or cleanfills that are consented by the regional council or have met the permitted activity status in regional plans. Contact your city or district council for further information.

Sorting waste for recycling and reuse

Instead of ordering one waste skip for all waste from the renovation project, set up a system to sort the waste into reusable, recyclable and left-over waste and have bins or piles for each type. Some things to consider:

- What waste will be separated for reuse and recycling and what waste will be disposed to landfill or cleanfill.
- What containers will be used for each waste type and where these will be located.
 - Containers can be anything from skips to drums to pallets or crates, depending on volume and room on site.
 - It may be easier to store some materials in piles, like timber lengths or metal.
- Ensure tradespeople and others on site know how to use the system. Signage on each of the waste bins and piles will help, but new people to site will need to be introduced to your system.
- Consider incentives to keep tradespeople interested throughout the project such as a shout at the end of the job if the waste is sorted correctly.
- Contact the various recycling operators and other contractors to find out the requirements for picking up waste and recyclables from your house (or drop-off requirements).
- Check with your city or district council to see if you can use your kerb side collection for cardboard, plastic packaging containers and tin cans.

In some cases, waste contractors may provide a ‘one skip’ service with off-site sorting and recycling services. Refer to the web-based databases, the Yellow Pages or your city or district council for more details.



Clearly label the waste skip so that no recyclable material is dumped in it. (Mainzeal).



Keeping waste separate during renovations makes it easier to recycle.

Reducing waste during construction

- Cut materials and store off-cuts in one area and reuse off-cuts wherever possible. It's a lot easier to use off-cuts if they are handy.
- Install materials and products as specified by the manufacturer.
- Arrange delivery of materials only when needed. This will reduce the time they are stored on site and reduce the chances of wastage resulting from damage and unnecessary handling.
- Store new and reusable materials including off-cuts safely to avoid damage – keep covered or stored inside so they don't get wet or dirty.
- Negotiate with suppliers to take back unused materials, packaging or off-cuts.
- Talk to suppliers about how they can provide materials with reduced, reusable or recyclable packaging.



Keep all the off-cuts until the end of the job, and use them before resizing new lengths or panels (Avoca Construction, Takapuna).

Waste reduction and recycling options

Concrete

- Order crushed concrete aggregate instead of new aggregate for sub-base, base course and landscaping materials.
- Form up accurately and fine-tune estimating. Up to 10% is often wasted.
- Return surplus cement to the supplier for recycling at the plant.
- Buy from plants that wash out cement to allow recycling of sand and aggregate.
- Break remnants into small pieces before final set to allow later use as backfill or recycling (see photo).
- Always form up a small area of path or low grade slab ready to accept remnants.
- Store waste concrete separately from other waste for crushing/recycling. Use ½ skips (4.5m³) if concrete is going to be taken off site for recycling.
- Reuse wooden boxing, and use timber scraps to make up boxing.



Brick and tile work

- Use second-hand bricks and tiles.
- Return oversupply to the supplier, on-sell or donate to charity.
- Use appropriate mortar strength for bricks. Softer mortar saves cement and helps in recycling.
- Recycle broken bricks and tiles with waste concrete.
- Keep tile pieces separate for reuse and make the left-overs available for art and craft work.

Timber

- Prepare accurate cutting lists before ordering.
- Measure once, cut twice to avoid mistakes and wastage.
- Keep off-cuts in a handy pile and use wherever possible.

- Keep treated and untreated waste timber separate at all times. Clearly label each bin or area.
- Order premade framing and joinery to avoid off-cuts on site.
- Provide untreated timber for firewood. Provide a dedicated bin or pile.
- All other untreated timber can be recycled – check with recycling operators whether this includes MDF and other engineered wood products.
- Treated timber waste must go into the landfill skip.



Electrical

- Use sub-boards and plan wiring to reduce wiring distances, quantities, waste and cost.
- Minimise the amount of spare wire at switch and plug points and metal plumbing at joins to reduce off-cuts.
- Measure once, cut twice to avoid mistakes and wastage.
- Recycle off-cuts with other metal. Strip insulation from wire prior to recycling.
- Recycle cable drums and reels or return to the supplier for reuse.
- Check the quality of existing wire in a renovation project for reuse rather than assuming the building should be rewired.

Plastering

- Prepare accurate quantity and cutting lists before ordering. Detailed planning can reduce the amount of plasterboard required and the amount of unused off-cuts.
- Have a single plasterboard cutting area to keep all off-cuts in one designated pile. Keep off-cuts clean and dry.
- Install plasterboard with nails or screws rather than glues to assist deconstruction and recyclability at the end of the house's life.
- Installing plasterboard horizontally can be more efficient (i.e. use less board and have fewer off-cuts) than installing it vertically.
- Off-cuts of half a board or larger may have resale value.
- Return oversupply to the supplier, on-sell or donate to charities.
- Store clean construction plasterboard waste separately on site for recycling.
- Keep demolition plasterboard separate, as demolition plasterboard is more difficult to recycle and may contaminate the waste.
- Recycle plastic buckets or donate for reuse. Scrape out plaster first into the landfill skip.



Glazing

- Order just-in-time delivery and store carefully to reduce the risk of damage.
- Separate construction glass from all other glass such as drink bottles and recycle. Store glass waste in a skip or bin.
- Recycle timber and aluminium framing separately.

Plumbing and drainage

- Plan plumbing and drainage to minimise pipe lengths where possible – group wet areas, use direct lines etc.
- Select pipe and duct lengths and fittings that fit the purpose but also minimise off-cuts during installation.
- Choose plastic products that can be recycled. Check the plastic type with local recycling operators.

- All metal, concrete and tile components can be recycled.
- Store off-cuts separately and reuse during the project. Keep off-cuts for use on other projects.
- Return oversupply to the supplier, on-sell or donate to charities.
- Recycle metal, plastic and concrete pipes and fittings. Store waste separately by material type.
- Prepare drain channels using recycled aggregate or broken bricks, tiles and concrete, rather than natural aggregate.

Roofing, cladding and insulation

- Select products that can be recycled. Metal, brick, tile, concrete and timber products can be recycled depending on the finishing products.
- Pre-order lengths from the supplier to avoid off-cuts from preparation on site.
- Store off-cuts separately and reuse during the project. Keep off-cuts for use on other projects.
- Return oversupply to the supplier, on-sell or donate to charities.
- Look to reduce the need for extra finishing and fixing products that create more waste. For example, have the roofing steel coloured by the supplier to avoid the need to paint.
- Store timber, tile, brick, concrete, insulation and metal waste separately for recycling. Keep treated timber separate from other timber types and dispose to the landfill bin.



Paint and other finishing products

- Order paint and other finishing products in bulk where necessary to reduce the amount of packaging required. For example, order one 10-litre can instead of five 2-litre cans.
- Keep left-over paint for reuse where possible during the project or for use on other projects. Donate left-over paint to charities.
- Return oversupply to the supplier, on-sell or donate to charities.
- Clean out cans and buckets for recycling – make sure the paint has set hard in the container, scrape out and put the hardened paint in the landfill skip. Recycle metal cans with other metal types. Recycle plastic buckets or donate them for reuse.
- Do not tip paint, varnishes, adhesives etc. down the drain, on the ground or into waterways.



Links, resources and information

- ConsumerBuild – information about building and renovating homes in New Zealand www.consumerbuild.org.nz
- Enviro-Mark®NZ www.enviro-mark.co.nz
- New Zealand Waste Strategy www.mfe.govt.nz/publications/waste/waste-strategy
- Resource Efficiency in the Building and Related Industries (REBRI) www.rebri.org.nz
- Site Safe. www.sitesafe.org.nz
- Sustainable Business Network www.sustainable.org.nz
- The Waste Exchange www.nothrow.co.nz
- Yellow Pages www.yellowpages.co.nz
- Zero Waste Buy It Back Guide www.zerowaste.co.nz/resources-education/buy-it-back-guide

REBRI guidelines and tools

- Waste Reduction – Design and Planning
- Waste Reduction – Construction
- Waste Reduction – Demolition
- Waste Reduction – Building Products
- Waste Reduction – Home Renovation
- Easy Guide to Waste Reduction – Construction
- Easy Guide to Waste Reduction – Building Products
- Contract Specifications for Waste Management
- Waste Management Plan
- Waste Transfer Form

Glossary

- **C&D:** Construction and demolition – refers to the process of building or demolishing domestic or commercial buildings, excluding infrastructure.
- **Cleanfill:** Area for disposal of inert material that does not require the high containment standards of an engineered landfill. Also used to refer to such material. The material deposited in a cleanfill will typically be from construction and demolition activities and will generally comprise soil, rock, concrete, bricks and similar inert material so does not include compostable materials, hazardous or toxic materials.
- **Construction and demolition (C&D) waste:** Solid waste typically including building materials, packaging, metal, plasterboard, timber, concrete and rubble resulting from construction, renovation and demolition of buildings.
- **Demolition:** Rapid destruction of a building with little removal of salvageable items.
- **Deconstruction:** The process of taking a building apart, storing and handling materials in a manner that achieves maximum salvage and recycling of materials and safe removal and disposal of hazardous materials.
- **Dismantling:** Taking a building or building components apart in a manner that achieves maximum salvage and recycling of materials
- **Engineered wood products (EWP):** Timber products that have been manufactured from wood pulp, fibre or veneer, for example, fibreboard or plywood.
- **Hazardous:** Explosive, corrosive, toxic or reactive.
- **HVAC:** Heating, ventilation and air-conditioning.
- **Landfill:** A site for the disposal of waste materials by burial. Historically, landfills have been the most common methods of organised waste disposal and remain so in many places around the world.
- **Non-hazardous:** Exhibiting none of the characteristics of hazardous substances.
- **PPE:** Personal protective equipment.
- **Renovation:** Changes made to a building including structural alterations, additions and redecorating.
- **Reuse:** Repeated use of a product in the same form but not necessarily for the same purpose.
- **Recycle:** Any process by which waste and recyclable materials are transformed or collected for the purpose of being transferred into new products.
- **Salvage:** Removal of structural and non-structural building materials from residential, industrial, commercial and institutional buildings deconstruction projects for the purpose of reuse or recycling.
- **Source separation:** The act of keeping different types of waste materials separate from other wastes from the moment they become waste,
- **Triple bottom line:** An assessment method that incorporates financial, environmental and social factors rather than just economic factors to make a decision.

- **Waste:** Any product or material resulting from the construction or demolition process that is surplus to or not included in the finished building

What is REBRI?

The REBRI waste reduction guidelines have been developed to encourage and assist everyone involved in the construction and demolition industry to reduce waste. REBRI stands for Resource Efficiency in the Building and Related Industries and started in 1995 as a collaborative effort between Auckland councils and BRANZ to undertake research and raise awareness of the issues of waste and the efficient use of resources in C&D projects. A consortium of councils, BRANZ, Recycling Operators of New Zealand and the Ministry for the Environment, with assistance from Winstone Wallboards Limited and industry representatives, extended the initiative in 2003 to undertake more research and develop national waste reduction guidelines.

Our thanks goes to the numerous individuals and organisations in the building and resource recovery industry, research organisations and in local and central government that have helped to develop these guides through participation at workshops, review of drafts and otherwise providing advice and time to the project.