

Easy Guide to C&D Resource Recovery – CONCRETE

TWO pages of the best tips from the 'REBRI Guide to C&D Resource Recovery' series on concrete.

The construction and demolition (C&D) industry is one of the largest waste-producing industries in New Zealand. Not only does C&D waste contribute around 17% of waste to landfills in this country, but also the majority of waste to our 'clean' fills.

The C&D industry has taken up the challenge of reducing waste to landfills and cleanfills, and many developers and builders are starting to demand recycling services for materials such as wood, plasterboard, metal and concrete.

Concrete is one of the largest sources of waste from building and infrastructure projects. While it is useful for rehabilitating quarry pits, it is becoming increasingly valuable crushed into a base course product to replace natural aggregate. More businesses in the building and contracting industry are now looking at ways to reduce disposal costs and the costs of purchasing raw materials. Crushing concrete for reuse is a great example of this.

Details are found in the REBRI 'Concrete' guidelines. The REBRI series has been developed to help the resource recovery industry to provide a top service to the C&D industry, develop new skills, provide quality feedstock for recycling and reuse options, and do things in a way that maximises C&D waste diversion from traditional disposal options.

Can't wait for the details? Keep reading for the best tips in the industry.

What is crushed concrete good for?

- As long as it meets the specifications of the client, crushed concrete can be used anywhere that natural aggregate is currently used, including:
 - loose on driveways, as unsealed hard stand and in landscaping
 - as a base course for footpaths, roading, driveways and other asphalted or sealed surfaces
 - as a base course under building foundations
 - for civil works such as stopbanks, earth bunds, soakage pits, drainage channels and beds for pipe works and cabling.

What's involved?

- You need to find local sources and markets for waste concrete. This could be easier said than done, but there are some organisations that can help (see the links and resources in the REBRI 'Concrete' guidelines).
- Concrete, brick, masonry roof tile (concrete or terracotta), ceramic tile and rock are all OK for crushing.
- Materials that aren't OK include soil, vegetation, wood and asbestos.
- Keep concrete and rubble separate from other C&D wastes during collection and transportation, to reduce product contamination.
- Pre-sorting is the best way of ensuring a quality product. Check all consignments for contamination, and sort as much contamination as possible prior to stockpiling.
- Pre-sorting also includes re-sizing large concrete pieces using hydraulic breakers or jackhammers so they can fit through the plant.
- Crush concrete into aggregate using mobile or stationary crushing plant and sizing screens. Set the size of screens to alter the particle size.
- Stockpile concrete prior to processing according to grades, and do the same for crushed concrete. Label all stockpiles.
- Have the crushed concrete product tested to meet your client's specifications.

Some things to think about

- Confirm your markets before you start. Getting it wrong can cost you.
- You can't run a crushing system without thinking about reinforcing bar removal. Make sure your crusher can handle it, and use magnets to recover it for recycling.
- Pre-sorting concrete prior to crushing saves time and wear and tear on your plant. Sort into 'ready to crush', 'requires pulverising' etc, and remove loose contamination at the same time.
- Using concrete-processing equipment is noisy, dusty and can create stormwater pollution issues. It pays to check with your local and regional council about environmental issues before you start. Waiting until there is a problem can cost you money and time under the Resource Management Act 1991.
- Consider the pros and cons of operating a mobile plant compared to a stationary operation. Apart from the financial differences, there may be other things such as the volume of concrete you will process, the availability of land, whether the crushed concrete could be used on-site, and the transportation distances between processing and the end use of the product.
- Get endorsement from your peers and give your clients confidence! Consider certification by Enviro-Mark® NZ or ISO14001. An authorised third party will check that you're doing all the right things. If that sounds too serious, check your performance against the REBRI 'Concrete' guidelines by using the audit sheet. Providing certification or audit information will help clients to feel more confident about your service and win you more business.

Examples from those out there – doing it



Stockpiles of concrete at various stages of pre-processing at Ward Resource Recovery, Auckland

Crushed concrete product, Ward Resource Recovery, Auckland



Ward Resource Recovery has been crushing concrete for reuse for a number of years in Auckland, either on the building site or at their yard in Penrose. "The key to good crushed concrete is the pre-processing and sorting," says Peter Ward of Ward Resource Recovery. The company has a stringent system of sorting concrete as it comes into the yard. Concrete is graded into 'ready to crush' or various levels of pre-processing depending on such things as reinforcing bar and the size of the pieces. The concrete-crushing equipment and conveyors move to the stockpiles around the site, on an as-required basis. Screens are used to grade the crushed concrete product into 'ready to use' and 'requires further processing'. All metal is removed using magnets, and recycled.