

Easy Guide to C&D Resource Recovery – PLASTERBOARD

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

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 landfill and cleanfill, and many developers and builders are starting to demand recycling services for materials such as wood, plasterboard, metal and concrete.

You'll be pleased to know that there are several options for recycling plasterboard already out there – it just takes someone like you to make it happen.

Details can be found in the REBRI 'Plasterboard' guidelines. These guides have 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 detail? Keep reading for the best tips in the industry.

What is waste plasterboard good for?

Plasterboard is essentially gypsum and paper (although there are numerous additives in the finished board product). When crushed, gypsum can be used like virgin product, either with or without the paper. A few great ideas have surfaced recently for reusing gypsum:

- as a soil conditioner and composting additive (gypsum is alkaline, and can correct acid soils and compost product)
- combined with sawdust and wood shavings for animal bedding (gypsum absorbs moisture)
- for industrial uses such as replacing virgin gypsum in plasterboard or cement manufacture
- for removing moisture from wastewater treatment plant sludges
- to settle dirt and clay from turbid water.

Note that some of these options still need more research at this time.

What's involved?

- You need to find sources of waste plasterboard and markets for crushed gypsum. This could be easier said than done, but there are some organisations that can help (see the links and resources in the REBRI 'Plasterboard' guidelines).
- Plasterboard needs to be sorted from the waste stream. This could be done on-site or at a designated sorting facility. Demolition and specialty plasterboard products may need to be kept separate from basic construction plasterboard depending on the end use of the gypsum and paper.
- Contamination needs to be sorted from plasterboard. This may include screws, wallpaper, wood and plastic.
- Plasterboard is mulched into gypsum powder and paper. Separating the paper and the gypsum is sometimes necessary, depending on the end use. This isn't as hard as it sounds – most plant will have some sort of separating mechanism.
- You will need to stockpile waste plasterboard sheets prior to processing.
- You will also need to stockpile crushed gypsum powder and paper.
- Plasterboard must be kept dry, otherwise it is impossible to crush into powder.
- The gypsum powder must also be kept dry, or it will turn into clumps or paste which reduces its value.

Some things to think about

- Each market will have its own feedstock specifications – it's best to confirm these before you start processing. Getting it wrong can cost you.
- Many of the recycling ideas need further research – get involved to develop new markets.
- Because of the additives in plasterboard it is important you check recent research, or do some tests, to ensure these won't be harmful to composting, landscaping or agricultural uses.
- Using plasterboard crushing equipment is noisy, dusty and can create stormwater pollution problems. 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.
- As mentioned above, plasterboard and gypsum can be ruined if they get too wet during storage. This will affect the quality and price of the product.
- Consider the pros and cons of operating mobile plant compared to a stationary operation. Apart from the financial differences, there may be other things such as the volume of plasterboard you will process, the availability of land, whether the gypsum could be used for landscaping on-site, the transportation distances between processing and the end use of the product, etc.
- 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 'Plasterboard' 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



Plasterboard sorted from C&D waste, ready for processing, Crusaders Landscaping, Christchurch



Ground and recycled gypsum without paper, Crusaders Landscaping, Christchurch

Crusaders Landscaping broke into the agricultural gypsum market in 2004, developing a soil conditioner product from recycled plasterboard gypsum. Virgin gypsum is commonly used to adjust soil chemistry for pasture and crop production. Research into the use of plasterboard gypsum showed that the recycled product provides the same benefits. Farmers either use it on its own or mix it with fertiliser prior to spreading.

Plasterboard is manually sorted from other C&D waste. It is then crushed and the paper separated from the gypsum. The paper is added to other organic material and composted by Crusaders. Up to 200 tonnes a week is processed at the peak of the seasonal demand.