

## Energy efficiency in commercial refrigeration

Ever popped into a dairy to buy a cold drink in summer and it's like an oven inside the shop? The cause is often poorly ventilated refrigeration units. Refrigeration units work by transferring heat from the fridge to the outside air. If the refrigerator is functioning well and sited correctly, it will not have to work as hard to maintain temperatures inside the fridge and therefore use less electricity. Improving the efficiency of refrigeration can create significant savings for businesses. Some common commercial product fridges use as much as \$1000 per year in electricity. Even a simple maintenance program can save significant amounts of electricity.

Good air flow is vital to a refrigeration units efficiency. In many businesses the warm air from a product or display fridge is not extracted, and recirculates through the condenser. The heating load is then transferred to the air conditioning system or as heat to the retail space. The cooler the air flow is over the condenser the more efficiently it operates. Many condensers are situated on the roof immediately above the fridge unit, which does not affect efficiency in winter or during the night, but during a hot summer day the condenser has to work much harder to shed the heat load.

### Some general tips:

- Locate the refrigerator in as cool a location as possible (away from direct sunlight, or sources of heat)
- Load the product when it is cool, before it warms up
- Turn off display lighting when not required

### Evaporator (inside the fridge)

- Keep free of ice buildup
- Allow room for air circulation

### Condenser (outside of fridge)

- Keep clean and free of dust
- Ensure the flow of air to the condenser is unobstructed and as cool as possible
- Extract airflow from above a fridge if it is inside the building

### Maintenance

- Check temperatures regularly and adjust thermostats if necessary
- Regularly check and maintain door seals
- Defrost regularly to prevent ice building up
- Clean condensers and evaporates of ice or dust



Ecomatters Energy Efficiency Advisor Bell Bell inspects a refrigeration unit

## Business Resources

The following informative resources are available free to businesses;

- Ⓞ Better Used Oil Storage – for automotive businesses
- Ⓞ Better Restaurant & Café Guide
- Ⓞ Health, Safety & Environment Guide for the Boat Building Industry
- Ⓞ Guidelines for Green Print Purchasing
- Ⓞ Clean Streams Poster – for staff areas
- Ⓞ Ways to Save the Planet – for staff giveaways

If you would like any of these business resources, please contact the Cleaner Production Team, Ph (09)839 0400



### Reply Form

Name: \_\_\_\_\_  
 Address: \_\_\_\_\_  
 Tel: \_\_\_\_\_  
 Email: \_\_\_\_\_

Please contact us or provide our business with more information

on:

- Cleaner Production Support for our business
- Business Recycling
- The Automotive Service Industry Project
- Construction and New Buildings
- Vehicle Fuel Efficiency
- Hazardous Substances
- Information for my industry \_\_\_\_\_

Post to: Cleaner Production Team, Waitakere City Council, Private Bag 93 109, Henderson, Waitakere City.  
 Email: info@waitakere.govt.nz  
 Fax: (09) 836 8024  
 Phone: (09) 839 0400

# Wise Resource Use

Issue 5, July 2007



## EnviroSmart™

Benefitting Business

In October 2006 three Waitakere businesses were honoured at the EnviroSmart™ business awards dinner. The awards ceremony which was attended by the Parliamentary Commissioner for the Environment and the Governor General recognised Alto Packaging, Fumapest and Huhtamaki New Lynn for achieving the EnviroMark® NZ GOLD certification standard and implementing environmental improvements in their businesses.

These three iconic Waitakere businesses joined the Auckland EnviroSmart Pilot programme in 2004 and embarked on the 2-year journey to environmental improvement. Over the 2 years the companies looked for opportunities to reduce waste, improve energy and water efficiency as well as putting into place a robust environmental management system in their business. Included in this issue are their stories and some examples of what can be achieved when a good environmental management system is put in place.

### EnviroSmart : Alto Packaging

Alto Packaging is one of New Zealand's largest rigid plastic moulding companies. They supply packaging to the food and beverage, industrial, agriculture, horticulture, pharmaceutical and medical sectors. Alto Packaging has 240 employees at its Henderson site.

Alto Packaging had some impressive results at the end of the EnviroSmart™ programme – water usage was reduced by 30%, they gained \$70,000 annual savings from energy efficiency programmes and waste to landfill was reduced by 80%! So how did they do it? Its amazing how a series of simple activities can have such a large impact. To reduce solid waste Alto Packaging improved the efficiency of their compactor, placed more of an emphasis on reuse and set up a comprehensive recycling system for everything from hairnets to industrial plastic bags, and the 80% reduction in solid waste equates to around \$10,000 savings in disposal costs every year!



Nick Guy, Alto's Environmental & Technical support officer

Energy efficiency savings came through a combination of fixing air leaks on compressors, installing power factor controls, variable speed motors and some adjustments to lighting. And water efficiency achievements came simply through replacing faulty valve chillers! "Over time, you will see the hard work pays off as environmental practices are embedded into the company." Alto Packaging Project champions Christine Koeleman and Nick Guy.

Look inside for more EnviroSmart™ case studies . . .

### In this issue you will find:

What we're doing at Waitakere Central ... a waste minimisation case study for offices

Your office, your business, your life!

Up-Grading the Work Vehicles?

New Industry Project - Automotive

### EnviroSmart Articles:

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- Fumapest
- Huhtamaki New Lynn

### Thinking of building?

Paint the Town!

A 'how-to' make you and your business more sustainable?

Energy efficiency in commercial refrigeration

One business' waste is another's resource

Printed on recycled paper using vegetable-oil based inks

## What we're doing at Waitakere Central ...a waste minimisation case study for offices

Moving into a new building is an excellent opportunity to review waste minimisation and recycling systems. That is exactly what the Cleaner Production team at Waitakere City Council did for the move into Waitakere Central, the new civic centre in Henderson.

Students from UNITEC's Environmental Engineering course have been auditing the waste and recycling for Council's offices since 2001. Over time slight progress has been made to reduce waste to landfill, mostly due to food waste from three buildings being diverted to worm farms, waste paper and most of the milk and drink bottles being collected for recycling. The Cleaner Production staff thought there had to be a more effective approach and decided the new building was good timing to try new approaches.

A review was undertaken to examine the current practices for recycling and what would be the best practice for the new building. Persuasion and persistence of the project managers and staff involved in the new building was required to allow room for the storage of recycling in the loading dock, copier rooms, kitchenettes, and for placement of the 2.4m x 1m worm farm (that had been purchased in anticipation of all staff eventually being located at one site). All the planning and persistence paid off thanks to the staff involved in the planning and constructing the new civic centre and all the Council staff that work in the building.



Mixed plastics and polystyrene recycling

### The new waste minimisation and recycling system at Waitakere Central consists of:

**Paper and Cardboard** – There are separate collections of confidential paper and non-confidential paper by Paper Reclaim. Approximately 9 wheelie bins (240L) of non-confidential paper are collected each week. Staff have a paper recycling bin, or share one between 2-3 staff and they are responsible for emptying them into the unlocked wheelie bins. Staff also place their unwanted confidential papers into a locked wheelie bin also located in each print room, which are collected only when full to save on expenses. The cardboard cage is collected each week and is usually full.

**Mixed Recyclables** – There are twin bins located in a cupboard in each kitchenette – one is 'Mixed Recyclables' and the other is 'Waste to Landfill' (as landfill is exactly where all items placed in the rubbish bin go). There is a large recycling bay for Mixed Recyclables, Paper and Waste to Landfill in the cafeteria. In total, approximately 8.5 wheelie bins (240L) of Mixed Recyclables are collected each fortnight through the Council kerbside recycling collection.



Waitakere Centrals worm farms

**Food Waste** – In each floors' kitchen and cafeteria there is a 10 litre 'Food Waste' bin. The food waste generated by staff is placed in the worm farm along with a limited quantity of paper hand-towels from the building. Staff take the liquid and soil generated by the worm farm home for their gardens.

**Plastic Recycling** – Sometimes it pays to go back and check if something can now be recycled that could not 2 years ago. We asked a number of recyclers and discovered that Recycle New Zealand (part of Waste Management) were able to collect and recycle polystyrene. Therefore most of our packaging from computer upgrades and other deliveries are now recycled!

**Waste to Landfill** – The result after 12 months of occupying the building is that approximately 6-8 wheelie bins (240L) are going as Waste to Landfill per day for around 700 staff.

## EnviroSmart™ Continued ... Fumapest

Fumapest and Fumacare provide commercial and industrial pest control programmes, quarantine fumigation and hygiene services. The company was established over 20 years ago and has 70 people employed at their site in Henderson. Increasingly customers have been asking the company about their environmental credentials this prompted the company to join the EnviroSmart™ programme.

Fumapest made great achievements through the programme, over the 2 years the company experienced a growth in sales by 9.5% and increased staff numbers from 55 to 70 however over this same period the solid waste created by the company didn't increase. They have started doing more bulk buying to reduce packaging and most packaging is reused - such as the 8kg plastic pails containing bagged bait - or separated and collected for recycling.

Fuel was one of the companies largest expenses so the company created a Green Driving policy with tips for staff on how to drive efficiently and also made improvements to route plans. As Fumapest looks to upgrade their fleet they will be considering the fuel efficiencies of different options.

"The further through the programme you go, the more motivating it gets, as you see changes and paybacks from what you implement" Fumapest Project Champions Nikki McKeown and Shane Byrne-King.



Ray and Trish (Fumapest Directors) with the fleet vehicles

## Huhtamaki New Lynn

Huhtamaki is a specialty consumer packaging provider which specialises in paper, plastic, film and moulded fibre. The company has a presence in 37 countries and employs 225 staff at its New Lynn site.

Huhtamaki took an innovative approach to the programme and looked hard at their existing processes to see how they could be improved. This has resulted in savings of \$500,000 in raw materials, with more to follow in the future. A partnership with their ink supplier and a new dispensing technique has allowed for greater recycling and reduced waste solvent, ink and adhesives by 14%.

Other resource efficiency initiatives included replacing some previously imported film with film manufactured on site, therefore reducing import costs and transport emissions.

Huhtamaki has also set objectives for community involvement and a schools programme on plastics and the environment has been established. They have also instigated an environmental 'scorecard' system for their top suppliers.

For more information on EnviroSmart™ contact Kelly Taylor  
Ph (09)839 0400



Warwick Hay, General Manager at Huhtamaki New Lynn

## Disposing of Unwanted and waste paints

Resene Paintwise now provides a service for the responsible disposal of unwanted and waste paints. Drop-off facilities are provided at the Henderson and New Lynn Resene stores or contact Resene for collection options. [www.resene.co.nz/paintwise.htm](http://www.resene.co.nz/paintwise.htm)

## A 'how-to' make you and your business more sustainable

There are many things that you can do in both your home and work life to improve the sustainability of your activities. Below are some ideas that you might like to consider should you wish to improve the sustainability of your lifestyle. There's also some general NZ consumption figures intended to give these suggestions some context, (the figures included are mostly estimates and may vary depending on where the information is sourced from).

Easy things to do – free / simple (and may even save you money)

1. Engagement with staff, family and the community is essential in improving sustainable practice – be inclusive when looking for ways to improve your environmental sustainability.
2. Drive less – combine trips wherever practical (1km not driven uses less fuels, creates less air pollution reduces congestion and saves around 280g of CO<sub>2</sub>);
  - use active transport – walk, bike (healthy)
  - use public transport (efficient)
  - use telephone or video conference (smart and cost effective)
3. Optimise vehicle efficiency (1 litre of petrol burned produces 2.3kg of CO<sub>2</sub>);
  - for petrol vehicles use only 91 octane fuel – it's cheaper and just as effective
  - ensure tyres are correctly inflated – saves up to 3% of fuel consumption
  - use air conditioning only when necessary – all accessories in a vehicle use power and hence require more fuel
  - use the right vehicle for the job – smaller is better
  - don't carry unnecessary load in your car and remove the roof rack if you are not using it
  - drive smoothly, it saves fuel and it's safer – poor driving style can reduce fuel efficiency by up to 25% - see [www.fuelsaver.co.nz](http://www.fuelsaver.co.nz)
4. Turn electrical equipment off when not in use, at the wall is best, especially when you go home from work and to bed at night. The average household uses 35% of its energy on lighting and appliances and can consume over 1 megawatt per year simply running appliances on standby (that's around \$200!)

When not in use switch off. Here are some examples of average standby and operating power use watts/hr

- lights – there are 29 lights in the average kiwi house
  - printers (2-70kW/hr), copiers (16-124kW/hr), TVs (1-48kW/hr), video (3-37kW/hr)/DVD(6-11kW/hr), stereos (2-12kw/hr)
  - computers (3-53kW/hr) & their screens (1-35kW/hr) (if away >30 min) - set PC energy saving options and install energy star on your system and set the energy saver to the lowest power use option (go to <http://www.energystar.gov.au/consumers/stepbystep.html>)
  - phone chargers (2-3kW/hr) use practically the same power if they are charging something or not!
5. Save paper and recycle where ever possible – Canadian figures show that 1 tonne of recycled paper saves 17 trees, 32,000 litres of water and enough energy to power an average Canadian home for 6 months (it takes 43% less energy than producing a tonne of paper from virgin pulp) it also creates 75% less air pollution and 35% less water pollution.

For more tips (easy, moderate and significant actions) contact Beau Mallett, Cleaner Production Ph (09)839 0400.

Think of how many more wheelie bins would be collected as Waste to Landfill per day if Council did not recycle all the above!



Waitakere Central Cafe

## Your office, your business, your life!

There is something we all take for granted...for the moment... and that's the low cost of putting waste into a large hole which is quickly filling up!

Local businesses will need to take action as costs increase for waste to landfill and all industry types should begin to take stock of what they currently dump as waste and look for alternatives to the skip!

The Waitakere City Council Cleaner Production team is currently developing Waste Minimisation and Recycling Plans for different industry types.

In a nutshell these plans will provide:

- Businesses a snap shot of their solid waste – the types produced and their source
- Quantities of the types of waste
- Solid waste categories – whether or not they can be reduced, reused, recycled and if they're hazardous or not
- Current list of the business contractors / service providers and how much they cost to the business currently
- Staff responsibilities and contacts.

The plan suggests options of how to use existing infrastructure and improve practices to reduce just dumping waste to landfill...or not! With the added bonus of environment and expenses saved!

Included in this newsletter is an example of the Waitakere Central and Civic buildings current Waste Minimisation and Recycling Plan. If your business would like a plan developed or would like to know more, contact Beau Mallett either by email [beau.mallett@waitakere.govt.nz](mailto:beau.mallett@waitakere.govt.nz) or Ph (09)839 0400

## Up-Grading the Work Vehicles?

Are the continued high costs of petrol being felt by your business? Do you want to take control back of your costs and reduce your business' impact on climate change?

Waitakere City Council recently replaced 44 vehicles and reduced its annual base fuel consumption by 12,282 litres of petrol and 4,057 litres of diesel, saving 40.69 tonnes of carbon emissions.

The majority were small vehicles changing from using 9 litres/100 kilometres of fuel down to 6 litres/100 kilometres of fuel – a 33 % fuel saving. The basis of the decision making process was life cycle while in Council ownership, fuel efficiency (litres/100 kilometres), Euro Air Emission Standard, New Zealand ANCAP Crash Test results, and of course user specifications.

For more information on how to reduce the fuel usage of your business vehicles, visit [www.waitakere.govt.nz](http://www.waitakere.govt.nz), search 'Sustainable Transport' or contact Michelle Dawson, Ph (09)839 0400.



Toyota Yaris (6 litres/100km, 4 stars NZ ANCAP) and Daihatsu Siron (5.8 litres/100 km, 4 stars NZ ANCAP)

## New Project - Automotive Service Industry

Waitakere City Councils Cleaner Production team are embarking on a substantial new project with the automotive industry.

Waitakere City has over 330 businesses in this sector including panel beaters, service stations, wreckers, car dealers and mechanics which the project will work alongside to ensure safe handling, storage and use of fuels and other hazardous substances.

The Cleaner Production team will be creating resources specific to these industry groups in Waitakere City and providing information and advice through site visits to businesses and would appreciate any feedback during this process.

The project ultimately aims to promote best practice and cleaner production principles such as "Rethink", "Reduce", "Reuse" and "Recycle" in relation to fuels, solvents, oil and paint.

For more information on the project contact Beau Mallett, Ph (09)839 0400.

## Thinking of building?

Are you thinking of expanding your current premises or building new premises? A significant amount of money is often lost in the construction process through the creation of waste. There is now a series of tools available to assist builders to reduce waste - and therefore reduce costs - in the construction process. These tools can be found at [www.rebri.org.nz](http://www.rebri.org.nz) and assistance is available for construction projects, contact Kelly Taylor, Ph (09)839 0400.

Another risk is that of fines through unintended pollution from construction sites. Make sure any person working on your site is aware of where the stormwater drains are and the need to protect them. This is important when doing any construction earthworks or using any hazardous substances that could potentially get washed down the stormwater drains. Even a small amount of a substance down the drain can have a significant effect on the quality of your local stream.

## Paint the Town!

Simmy Painters, Amon Property Maintenance and Leo Rutten Painting and Decorating are businesses of mixed size with different types of painting operations. These three local painting businesses have all taken steps to examine their current operating procedures to see whether they could identify any measures to be taken to improve their operations and reduce any environmental impacts. The businesses were assisted as part of the Cleaner Production Paint Industry Consultation Project and by undertaking some simple measures they are now included on Council's preferred suppliers list for future tenders.

Here are some examples of actions taken by these businesses:

- Simmy Painters now sandblast to remove paint instead of water blasting! Sand is much easier to contain and dispose of this will be favoured over water blasting in the future.
- Leo Rutten Painting and Decorating transfer and store equipment and products in bins to minimise the risk of spills.
- Amon Property Maintenance supply vehicle spill kits for all large jobs and high risk sites as well as having basic kits for all vehicles.
- Each company wrote their own Environmental Policy.
- Standard operating procedures (SOP) were drafted by the businesses to achieve the aims of the environmental policy. The SOP is detailed and targets all high risk procedures such as surface preparation, loading/unloading, cleaning, disposal and stormwater protection.
- Amon Property Maintenance recommends the use of environmentally friendly paints – e.g. those showing the Environmental Choice tick – to their clients.
- All businesses ensure any unwanted or waste paint is disposed of responsibly.

For more information, tips and weblinks check our website [www.waitakere.govt.nz](http://www.waitakere.govt.nz) search keyword "Paint EnviroTips" or feel free contact Beau Mallett, Ph (09)839 0400.



Leo Rutten Painting and Decorating at work