

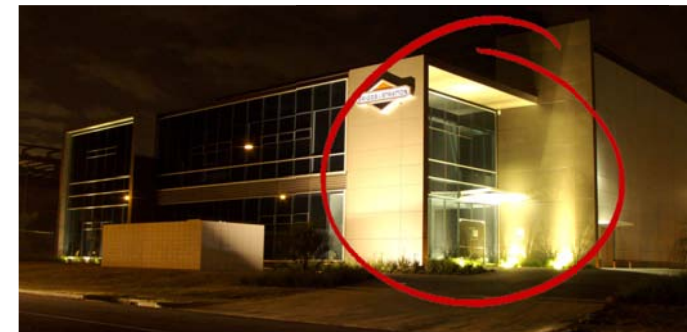
energy efficiency and conservation

In higher-density, higher-value uses (such as a corporate office), buildings should be designed to be at least as energy efficient and healthy as a high-quality house.

- **Look to cluster compatible uses together to make shared or common services viable (cold stores, freeze drying, cryo-vac, inert gas and vacuum packing, packaging and refrigerated transport services, etc).**
- **Maximise natural light and invest in automated ventilation and temperature control devices.**
- Use low energy lighting (preferably LED), especially for any amenity or security night-time, car parking or advertising lighting. Incorporate advertising lighting with security lighting around entrances and features. Look to incorporate with control sensors to minimise energy waste.
- Ensure windows related to offices or staff / customer use areas open to green space where appropriate, and can be easily opened to help control internal heat and ventilation.
- Use construction and waste management plans when building. For further detail on improving resource efficiency in building design, refer to the council endorsed Rebri guidelines <http://www.rebri.org.nz/>
- Consider the use of photovoltaic cells on large roof areas for not only on-site use (such as hot water), but to possibly supply street lights, bus shelters, adjacent buildings, or trickle to the national grid. Such cells could be leased to other operators to manage.
- For further guidance view the New Zealand Green Business Council Greenstar Industrial Rating Tool at www.nzgbc.org.nz.



Adjustable louvres around windows can be designed to manage light. In some cases it is also possible for louvers to mitigate noise.



'Landmark' lighting has been integrated with practical security lighting around the building entrance.



This industrial building improves its energy consumption by incorporating solar panels and solar cell modules on the roof.

low impact design

Industrial uses tend to maximise impermeable surface areas, limiting the viability of on-site water quality initiatives.

The main focus in employment areas is on water quantity: peak flow attenuation by way of rain tanks will be the default minimum.

Use captured rain water to supply on-site landscaping and toilets.

- **Swales and rain gardens can be more viable if shared between sites along boundaries, collecting water from parking and manoeuvring areas.**
- **Shared spaces will maximise the use of such areas and can offer excellent staff amenity.**
- **Use semi-permeable paving for car parking spaces.**
- **Use low-maintenance landscaping and low shrubs and tussocks in preference to large areas of grass - the cumulative CO₂ footprint from regular mowing is significant.**
- Ensure rain tanks are located to allow easy maintenance in the future.
- Use locally-sourced durable materials with a low embodied carbon component, including fewer carbon miles.
- Avoid zinc or lead-based paints on roofs and other areas as this incrementally degrades waterways and coastal marine areas.
- Ensure paint, oil, and other hazardous contaminants do not enter waterways. Capture these on-site and provide for their storage and safe eventual disposal.
- Think about green roofs in higher-value premises such as offices. It provides excellent insulation, reduces the thermal footprint of buildings, and can offer excellent staff amenity.
- Refer to the council's NorSGA Low Impact Design Code of Practice for more detail.



Semi-permeable pavers help to manage storm water issues and can add visual interest to an industrial site.



Incorporate on-site landscaping with storm water management. This example captures runoff from parking areas, channelling it to a rain garden via kerb cuts to filters before discharging to the piped system.



A small raingarden and swale located between parking bays. Source: NorSGA Low Impact Design Code of Practice

storage and collection of wastes, servicing and loading

Service and deliveries are best suited at the side or rear of the site well away from the frontage.

Carefully screen service and loading areas to maintain visual amenity and practical on-site security and safety.

- **Consider how to preclude public access from waste and service areas which may be physically dangerous or compromise privacy.**
- **Provide a secure area for the storage and collection of wastes including hazardous wastes and recycling. This area should be located internally, serviced by a vehicle entering the building (via a service bay), or to the side or rear.**
- **For larger activities with a high delivery, servicing component look to provide the 'entry-in' separate to the 'exit-out' to ensure the efficient circulation and manoeuvring of heavy vehicles.**
- Ensure that the storage of client vehicles for yard based services and retail never blocks on-site manoeuvring space or requires vehicles to use the street.
- Make adequate provision for servicing and emergency vehicle access.
- Provide dedicated loading bays for large trucks.



A false façade and gate provides for very secure, safe, and screened servicing, loading/unloading, and storage/collection of wastes away from the street.



Servicing and storage of containers is located inconspicuously to the side of the building with all effort directed towards focusing attention to the building frontage.