Te Waonui Forest Retreat
Environment Principles

The Te Waonui Forest Retreat Hotel incorporates a number of measures to greatly reduce its environmental impact. Many of these measures are integrated seamlessly into the hotel without drawing attention to themselves.

The hotel is designed to stand the test of time, it is a durable New Zealand building designed in an appropriate way to complement and blend in with its stunning natural setting.

1 Site Ecology

Franz Josef is an area of outstanding natural heritage.

From the outset, design decisions have been made to maximise the amount of existing native bush retained on the site. Important specimen trees were carefully located and building locations adjusted to preserve as many of these as possible.

The Rain Forest Courtyard is a key feature of the development with all rooms having an aspect into preserved native bush. The hotel will attempt to encourage native birds by using feed stations.

Where bush has been removed, new landscaped areas use locally appropriate native plantings to re-establish the bush environment in and around the buildings. Some of the buildings hover above ground level allowing for the ground cover and ferns typical of the West Coast to help integrate the buildings back into their surroundings.

Hard asphalt areas have been minimised with permeable gravel used to assist rainwater soakage back into the earth.

Swales are used rather than hard concrete kerbs and channels. Swales allow for a natural system of rainwater collection and dispersal, and provide a softer interface with hard-standing areas and the native bush.

Car parking numbers have been reduced to allow a greater area of bush to remain.

The buildings are designed with a soft timbered feel and adopt a colour scheme sitting comfortably with the tones of the native bush on site.

2 Passive Design

Large overhanging roofs shelter the buildings from the intense rain typical of this location but also serve to shade the interior spaces, keeping them cool throughout the humid summer. Slatted screens and sun shading elements further filter the impact of the sun, wind and rain on the building, just as the tree canopy does to the forest floor.

Guest room buildings have double insulated roofs and wall insulation is substantially better practice than any relevant New Zealand building codes. Windows throughout are double glazed.

Some exposed thermal mass (concrete, stone and tiles on concrete) in the public areas of the hotel will assist in creating a steady and comfortable thermal environment in these spaces.

The foyer, bar and restaurant as well as service areas are naturally ventilated. A sophisticated system of automatically controlled opening windows and ceiling fans provides for a natural air movement. The elimination of air-conditions from these areas provide a significant energy saving.

3 Occupant Health and Low Toxicity

A focus has been to provide healthy and environmentally safe accommodation to maximise the guests' well being.

Natural ventilation and lighting is incorporated.

Finishes have been selected to drastically reduce volatile organic compounds (VOCs) being released into the air. The New Zealand independent environmental certification system "Environmental Choice" has been used as a benchmark for the selection of many of the internal materials.

Paint systems are from the Environment Choice range also, they have low toxicity and have minimal chemical off-gassing.

4 Materials

Materials are chosen wherever possible to be made in New Zealand. This contributes to a reduction of the building's Carbon Footprint.

Independent environmental certification of many of the materials has been required.

The use of high energy content materials such as steel are minimised with a real emphasis on fully renewable materials such as timber.

Timbers are specified from an appropriate environmental certified source ensuring that responsible, renewable and non-rainforest sources are used. Pinus Radiata, Cedar, Eucalyptus and Vitex are used.

Concrete aggregates and hard fill are locally sourced from the Waiho River, reducing transportation energy and utilising a hugely abundant resource. The concrete is manufactured just a few hundred metres down the road from the site.

The local character of this gravel source is expressed in the hotel's concrete walkways and terraces.

Fixtures, Furniture and Fittings

The interior design scheme for the hotel takes its inspiration from the region and the qualities of the site.

Wherever possible New Zealand designed and manufactured elements are used, such as natural wool fabrics and carpets.

Local industry is supported by the use of possum skins for cushioning throughout. The possum is a pest in New Zealand and extremely destructive of our native bush.

5 Energy Efficiency

Energy efficiency is a key aspect in reducing the carbon footprint of a hotel. Several measures are taken at Te Waonui to assist with the energy efficiency of the premises.

Lighting

Natural lighting is used extensively throughout the property potentially reducing artificial lighting energy loads.

Artificial lighting is deployed in an energy efficient manner. Energy efficient lamps are specified for all exterior lights located on walkways and pathways. All halogen lamps utilise latest technology, resulting in lower power consumption when compared to conventional halogen lamps. The use of a lighting control system within the Bar, Lobby and Restaurant, amongst other things, greatly extends the lamp life of the lighting systems within these areas. Light levels on walkways are reduced by 50% during off peak hours to assist with energy efficiency. An electrical load shedder will limit the maximum electrical demand on the site.

Hot-water Heating

The heating of water in a hotel is a huge consumer of energy. In this hotel localised electric water heating per block will reduce pipe runs and resultant energy losses. The wet and sometimes cloudy climate reduced the effectiveness of solar hotwater systems in this location and they were discounted as an option.

Space Heating and Cooling

Some passive means are used with minimal energy inputs to assist with the heating and cooling of spaces. Natural ventilation combined with thermal mass temperature stabilising effects are used in some areas, for example.

The foyer, bar and restaurant are heated using a hot water radiator and under-floor hybrid system. This allows for a very high quality of heat within these spaces. A small efficient LPG boiler powers this heating system.

In guest rooms heat pumps are used for heating and cooling when required. Guests have the option of naturally cooling their rooms with generous opening windows and sliding doors out into the Rain Forest Courtyard.

Within the guest room spaces individual comfort controls allow the temperature to be controlled within small well defined zones accommodating differences in personal preferences.

Control Systems

Control systems have a fundamental effect on the amount of energy used by a hotel during its operation.

At Te Waonui smart after-hours control of air conditioning systems is employed allowing shutdown and/or setback during unoccupied periods.

A building management system allows for refined control of mechanical systems throughout the building and permits good energy management practices.

6 Emissions

Care has been taken to ensure all refrigerants and insulating products are zero ozone depleting.

7 Water Efficiency

Water is a reasonably abundant resource in this location but this hotel still aims to substantially reduce water use in a number of ways.

In the guest rooms environmentally certified tap ware, and showerheads with a low water use option help reduce the hotel's water consumption.

In addition certified low water use guest room toilets further reduce potable water consumption.

8 Waste Minimisation

The reduction of waste is a part of ensuring a hotel is sustainable both during construction but especially during the life of the building.

Recycled materials are used in several aspects of the hotel. Recycled hardwood telegraph poles support the main entry and loading dock canopies. Recycled hardwood railway sleepers form lighting bollards throughout the site.

Carpet underlays are substantially manufactured from recycled content.

Many of the main structural elements of the building are bolted together. This technique increases the ease of disassembly in the future, thereby increasing the possibility of reuse of building elements should the building ever be removed.

Sheet products are designed to suit factory-produced modules wherever possible reducing wastage.

Each guest room will have a custom designed recycling centre enabling guests to separate their waste to ensure recycling occurs.

9 Construction Systems and Processes

The design of the building has been carefully executed to reduce the need for heavy machinery which would have too much impact on the sensitive bush surroundings.

Construction elements are generally kept small and manageable reducing the need for cranage.

Many elements have been designed so they can be pre-fabricated off site, minimising disturbance on the site and reducing on site storage and staging areas. The bush is further protected by this measure.

A pollution reducing "Envirowash" system for paint disposal was used during the construction phase to limit the effect of paint run off into the environment.

There is an emphasis on returning the bush clad site to its former state once construction is complete.

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