

Case Study: Government House Leads by Example

It's not every day that one of our members fills in a Building Consent in the name of the Queen of England, but when SolarPeak was contracted to fit a solar water heating installation to Government House in December 2010 the client really was Her Majesty Queen Elizabeth II.

The brief

Design and install an 'A Grade' solar water heating system to integrate with a new gas boiler as a pre-heat system. Conditions included:

- The solution needed to fit in with the surrounding historic buildings
- The system needed to be elevated away from the roofing by at least 100mm to ensure that roof cleaning was possible
- SolarPeak needed to calculate and provide for sufficient expansion within the system to allow for periods of non use and stagnation
- SolarPeak was asked to liaise with technicians to install monitoring sensor points throughout system to collect performance data.

The Solution

SolarPeak consulted with the architect to decide the positioning of collectors, roof pitch, and orientation, and a purpose built chauffeur's garage was constructed facing north, with 40' roof pitch to allow flush mounted panels for a favourable aesthetic.

Special stainless steel mounting brackets were created to raise collectors the required extra 100mm above roof surface to allow for roof cleaning, then SolarPeak calculated the extra expansion capacity required to accommodate periods of stagnation and low hot water use.

The solar water heating system includes 240 tubes installed with 2 banks of 4 x 30 tube panels in series facing north.

The water heating system design includes 3 x high quality 430 litre duplex stainless steel preheat tanks that feed a gas boiler and ring main system.

SolarPeak New Zealand worked with its licensed Wellington area agent E. G. Glennie & Co, Master Plumbers, to perfect the design and then install the solar thermal system, and liaised with the building management system technicians to position sensors around the water heating system to collect performance data.

The Result

The solar thermal system should offset at least 18MW of energy per year and up to 240 tonnes of carbon over its 25-30 year predicted life span.

Data logging over the first 10 Months from January 01 until October 01 showed that the system performance is excellent and the operation of the system is trouble free.



Solar Savings:

- 18MW energy per year
- 240 tonnes carbon over system lifespan