

Solar water heating a challenge but worthwhile

Reducing energy use from water heating by installing solar water heating proved a challenge, but a worthwhile one.

Nick's story

We are still first time home owners, living in a 1920's bungalow for the last 27 years in Auckland. The house has been extensively extended as the family grew up but we have only recently started renovating to make it warmer.

Early in 2009 we added a 75mm Pink Batts blanket to the existing 75mm ceiling insulation. We had Novafloor (polyester and recycled plastic) insulation installed under the floor. We have noticed much warmer temperatures with a 2°C increase in temperature in our living room in winter.



Our latest challenge was to reduce our energy use from water heating. We had an old 180 litre electric cylinder which was nearing the end of its life. I evaluated water heating systems and decided to invest in an evacuated tube solar hot water heating system from Azzuro Solar. But I had no idea of the journey ahead!

Firstly I was dismayed to learn that, not only would a building consent cost me \$800, but Auckland City wanted a site plan, a floor plan, elevation, roof plan and a technical drawing showing how the penetrations through the roof would be addressed.

Fortunately, with our extensive renovations, we had a complete set of A1 sized plans. We gave these to Azzuro Solar who sketched in the technical details and submitted them to Council. Unfortunately our existing plans were rejected on the basis of “too much detail” and we had to resubmit plans in A3!

The good news at this point was that our Council had reduced consent fees for solar water heaters to a mere \$50.00 – a much better incentive.

We finally received our building consent in February this year and Azzuro Solar was ready to install our system. This proved to be complicated. Our existing hot water cylinder was located in the basement of our one and a half storey house with a full storey between cylinder and roof. Our installer cleverly thought to bring the pipe work through a hall cupboard, only to find a block wall in the way. He ended up having to divert the pipes through a downstairs wardrobe.

When the existing cylinder was removed, we found that it was badly rusted and actually leaking badly – a couple of weeks later we would have had no hot water. Our new cylinder is a 280 litre, New Zealand-made Triumph stainless steel cylinder. Azzuro recommend larger volume cylinders as the additional volume helps keep the water hot. We chose a slightly more expensive stainless cylinder as they are better able to withstand hotter temperatures than enamel cylinders.

In the house is the solar controller which provides a temperature read-out at three points in the hot water system – on the roof panel, in the middle of the hot water cylinder and at the inlet into the cylinder. In the first three weeks of operation, with no electrical boosting, the tank temperature has not dropped below 65°C.

We are pretty chuffed with the system. All up, it cost almost \$8,000 (including \$1,000 EECA grant). We estimate that, at current power prices, it should have paid for itself in 8-10 years - considerably less if we discount the new cylinder we would have had to purchase anyway.

For more information:

- See Fact sheet on Solar Water Heating Systems