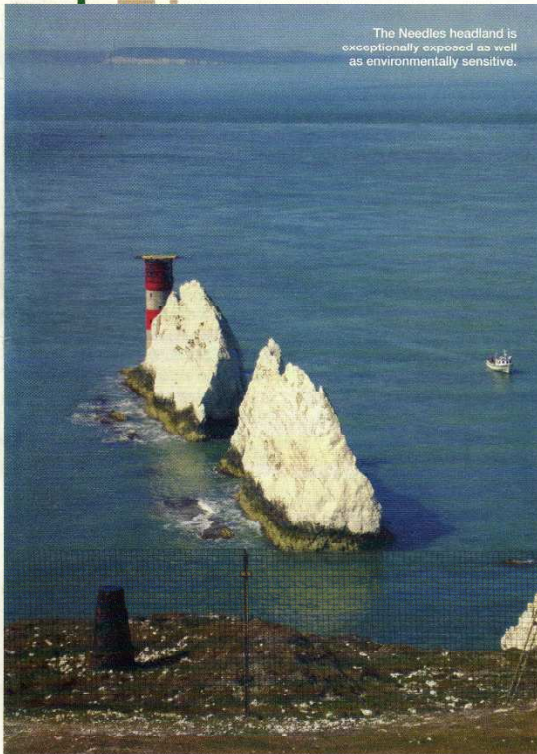


Battery powered



When a unique National Trust site required a change of heating system, Dimplex Renewables were able to provide the ideal solution in the form of an air source heat pump.

© NATIONAL TRUST



The Needles headland is exceptionally exposed as well as environmentally sensitive.

On a spectacular headland overlooking the Isle of Wight's famous lighthouse, the Needles Old Battery has been at the forefront of technological development for nearly 150 years. So when it came to installing a new heating system to meet 21st century energy efficiency requirements, the National Trust, which owns the site, opted for an air source heat pump from Dimplex.

The air source unit provides heating and domestic hot water for the visitor tearoom and National Trust offices at the popular visitor attraction, Isle of Wight-based and Dimplex Renewables-accredited installer – Clarke's Mechanical – carried out the installation, replacing an old oil-fired boiler that was inefficient and expensive to run. The heat pump is located in the old oil storage room, now converted to a plant room, and, to keep costs to a minimum, the existing 'wet' heating system was re-piped and used with the new system.

Paul Taylor, Contracts Manager at Clarke's Mechanical, explains some particular considerations of the installation:

"The Old Battery site is exceptionally exposed; the headland has recorded wind speeds of over 100mph in extreme conditions, so the whole system needs to be tremendously robust. We specified extra capacity in the system to be certain of avoiding >



Ecoinstaller | 33

any shortfall in the very harshest conditions, and, although the Dimplex heat pump is installed under cover, we also fitted rain guards over the air intake and outlet for added weather protection.

"The Dimplex team was very helpful with specifying the right equipment for this unique installation. In particular, the renewables specialists were really supportive when it came to commissioning the system, as we had lots of questions on how to achieve the optimum performance."

The Dimplex heat pump installed offers variable heating water flow temperatures from 35°C to 58°C, weather compensated, with low noise fans to minimise sound transmission. Unusually, to ensure the new system blends in sympathetically with its



surroundings at this historic site, the parts of the system on show were painted battleship grey.

Air source heat pumps are ideal for retrofits of this type because they don't involve the complication and associated expense of installing ground collectors. Heat pump models are available for indoor or outside installation to give specifiers flexibility over system design, and, as with this project, existing plumbing can be incorporated into the new system to minimise costs and disruption.

Dimplex offers the UK's widest range of heat pumps, with air source heat pumps available in outputs from 6kW to 60kW, spanning applications from smaller domestic to large commercial installations while ground source heat pumps are available in outputs up to 130kW. The latest technology, such as high performance evaporators, is incorporated to achieve typical Coefficients of Performance (CoPs) of around 4.4 when operating at low flow temperatures. Larger models feature twin compressors for higher capacity output and a choice of two performance capabilities, with intelligent load switching between compressors to adapt to fluctuating heat demand and maximise compressor life.

As well as being a very visual attraction where visitors come for the spectacular views over the Solent, Dorset and Hampshire, the Old Battery has a long history of being at cutting edge of technology. Constructed in the late 19th century for coastal defence against the threat of invasion by France, in the 1950s and 60s the site was used to test space rocket engines.

For the National Trust, the new heating system presents an ideal opportunity not only to achieve its carbon emissions reduction targets,



© NATIONAL TRUST
The historic guns at the Needles Old Battery site, where a Dimplex heat pump warms the visitor tearoom and National Trust offices.

but also to present today's low carbon technology to visitors, with a display on how the equipment works. In addition, the system is fitted with visible meters to show the energy savings being made.

Paul Rayner, Building Surveyor for the National Trust, says: "The Trust has its own environmental goals, with key performance indicators on reducing energy consumption at its properties. Adding a renewable heating system is a great step forward, allowing us to meet and exceed the requirements."

"We'd been considering a heat pump for some time, as we wanted a more environmentally considerate solution for the beautiful Needles headland and a Dimplex heat pump was the natural way forward."

The project received funding from the National Trust's Npower Green Energy fund and the Isle of Wight's Area of Outstanding Natural Beauty (AONB) sustainable development fund. The National Trust, with the aid of funding from the Low Carbon Building Programme Phase 2, has also recently installed a small solar PV array on the roof above the plant room, which will help power the heat pump, lowering the site's carbon footprint still further.

© NATIONAL TRUST



A 16kW Dimplex air source heat pump is located in the old oil storage room, now converted to a plant room.