



Canal &
River Trust

Sustainable Cooling Solution for Canalside Properties

What do a major datacentre, modern shopping complex, city art gallery, an established university, and a dockside hotel have in common with your premises or your client's premises?

If the answer is a canalside location, we think you should consider The Trust's proposition to use canal water for cooling your building.



The Canal and River Trust manages 2,200 miles of canals and rivers that pass through most of England & Wales' major urban areas and along which are located thousands of businesses. We are now offering waterside developments a cost-effective and eco-friendly cooling system that uses recyclable canal water.

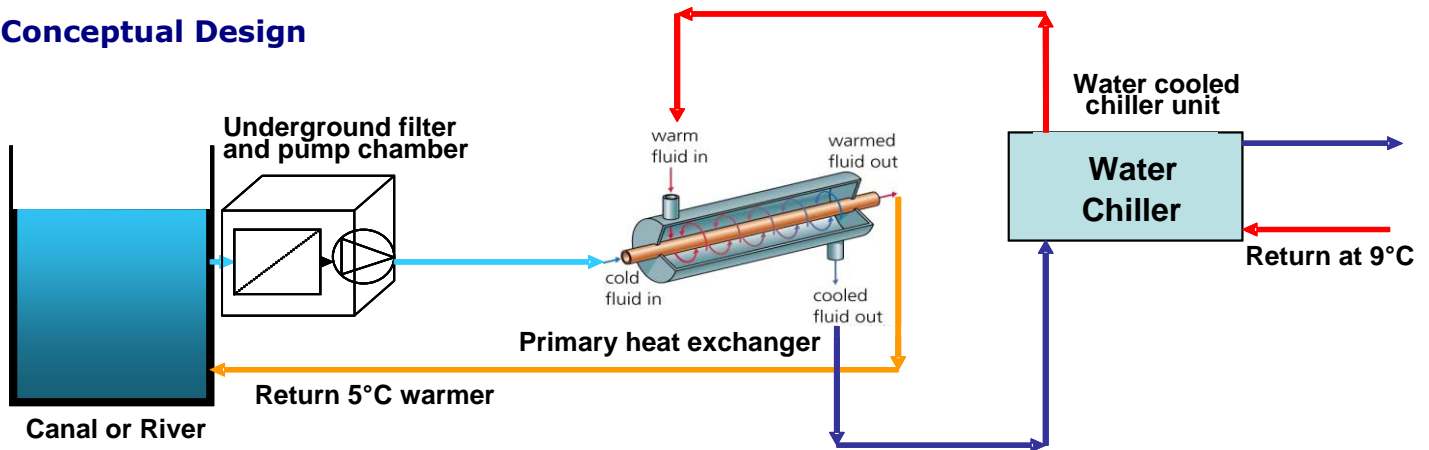
Key Considerations

- **Most large companies' energy costs are spent on cooling their buildings. Heat generated by computer and communications technology as well as lighting makes keeping cool much more of a problem year round than heating the premises in winter.**
- **Companies that adopt The Trust's Canal Cooling Concept can potentially re-coup their initial outlay within four years through electricity savings, and go onto enjoy cheaper energy bills.**
- **This sustainable solution replaces the need to burn fossil fuels and will reduce a company's carbon footprint.**
- **The principle of cooling buildings has been around for many years. A university user that adopted this system successfully over 30 years ago has undertaken a study recently that shows the impact of the technology has had a negligible effect on the flora and fauna of the canal.**
- **An increasing number of UK organisations are joining an established band of developers in Northern Europe that utilises Heat Exchange Technology to cool buildings – we believe you should consider doing so too.**

CANAL WATER COOLING SYSTEM:

Water is pumped from the canal through a coarse filter and pump chamber to water-cooled heat exchangers; the warm water is then channelled back to the canal. On the other side of the exchangers is the closed loop that feeds the water-cooled chiller. The system works in a similar way to a car radiator: cool air passes through the hot engine to lower its temperature.

Conceptual Design



The system is sealed so unlike other air-conditioners there is no need to treat the canal water; it never mixes with any other fluid used in the building, thereby eliminating risks of Legionella.

Overview

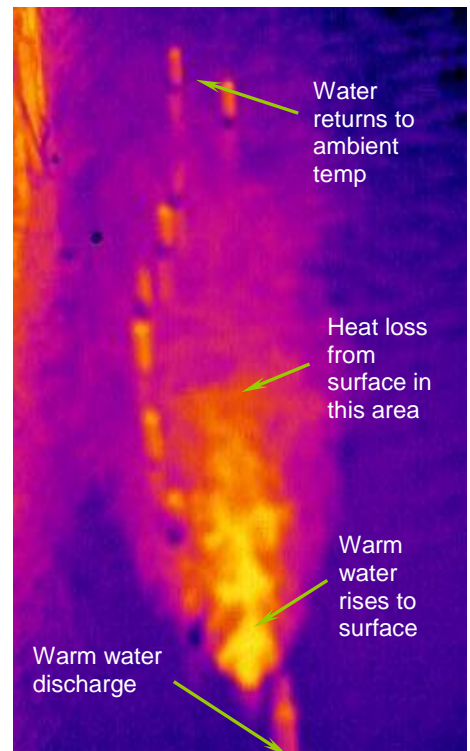
Companies should consider using the canal water option rather than air chillers for several reasons:

- Canal water is significantly cheaper than using a mains water supply.
- There will be energy savings through considerably reduced electricity costs.
- For many businesses, much of the required equipment may be covered by the Enhanced Capital Allowances scheme; we can advise a customer on how to maximise allowances and make their investment cost and tax efficient.
- A company's carbon footprint will be reduced and impact on the environment lessened.

Environmental Considerations

Under current legislation, the discharge into the canal outside of what is called the 'mixing zone' should not be increased by more than 3 °C above normal canal water temperature or exceed 28 °C. This 'mixing zone' is the area of water where the discharge and canal waters meet surrounding the outfall. Temperature standards do not apply inside the mixing zone.

The previously mentioned study has shown that because warm water rises to the surface the water returned to the canal loses all of its heat in a surprisingly small area (see image right). The temperature can drop by around 10 °C when travelling from the heat exchanger back to the canal and further heat may be lost if a water feature is incorporated in the water's return route.



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