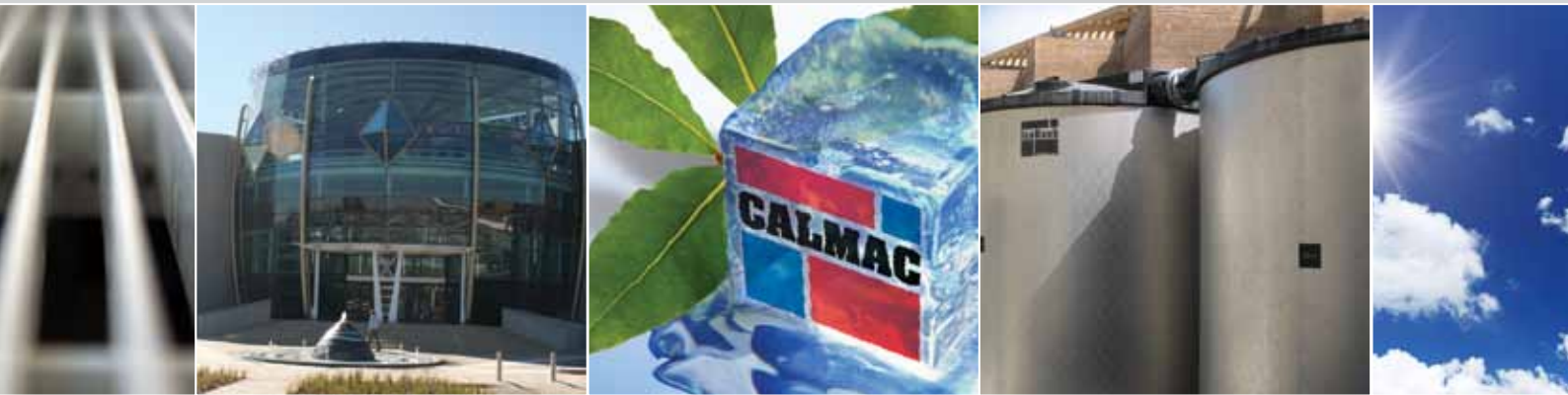


Thermal Storage



Thermal Storage

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Calmac Thermal Storage

Icebank® Ice Storage is the breakthrough air conditioning product that is designed to minimise the consumption of expensive daytime energy. Ice Storage offers you all the cooling of a traditional AC system at a fraction of the cost. In fact, the only one who will notice any difference to the cooling is the person paying the energy bill.

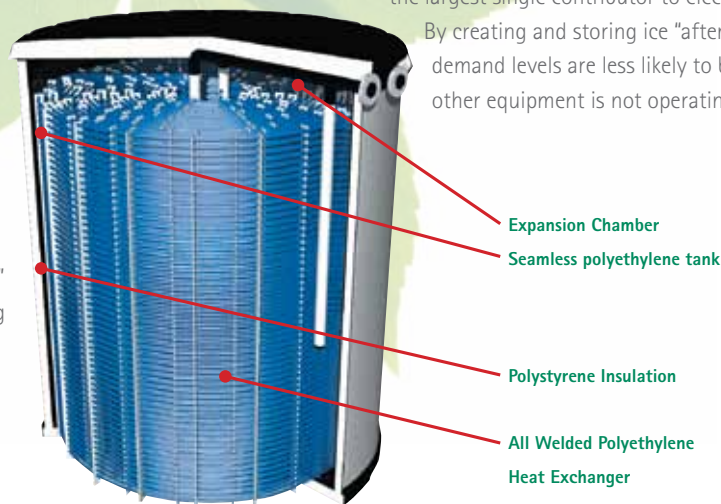
Storage is an integral part of our world, from the food in our cupboards to the water in our dams and reservoirs. Storage balances supply and demand

The Thermal Storage Concept

Make ice at night to cool buildings during the day.

How does Ice Storage work??

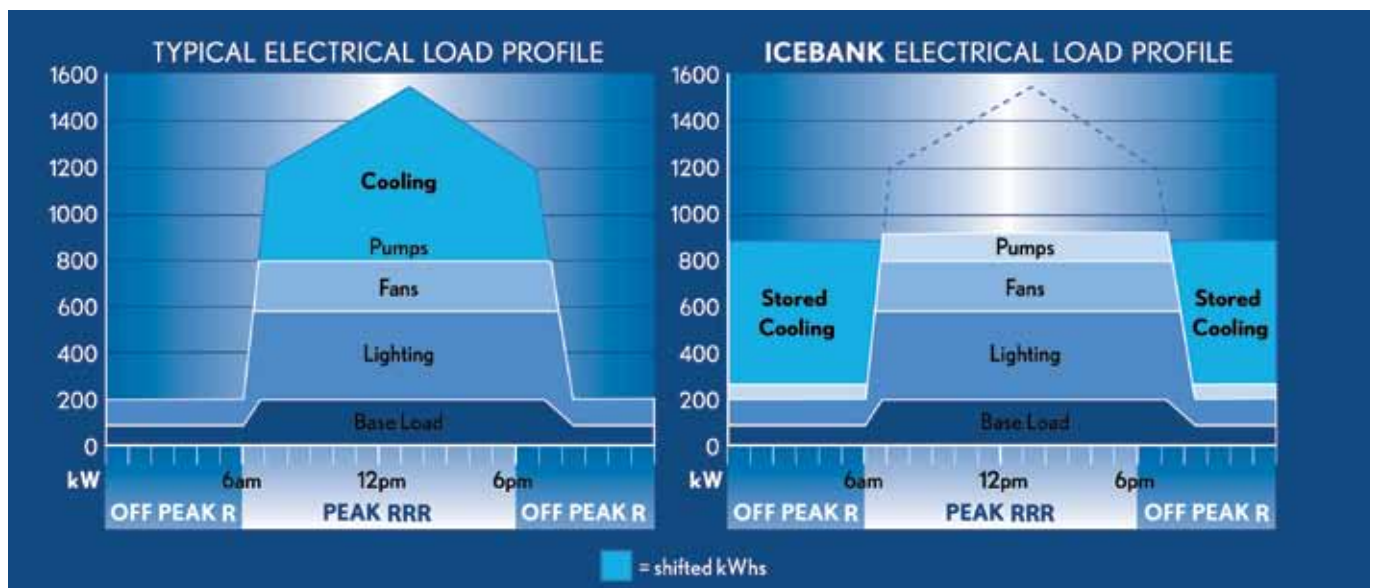
- A traditional chiller produces ice, which is stored in modular tanks
- The "ice storage battery" is charged at night when energy costs less
- During the day the "ice storage battery" discharges, giving cost effective cooling and reducing peak demand on the electricity supply grid.



Avoid Peak Demand charges

Airconditioning commercial buildings during summer daytime is the largest single contributor to electrical peak demand.

By creating and storing ice "after hours" the peak load demand levels are less likely to be exceeded when most other equipment is not operating.





Save Energy, Conserve Resources

Electricity is more plentiful at night and more efficiently produced. Ice Storage helps conserve resources and protect the environment by using less energy and lowering emissions.

Once electricity is produced, it cannot easily be stored. Power stations run 24/7 and electricity produced at night is cheaper when demand is lower.

Save Money on Electricity

A chiller runs most effectively and efficiently when operating at, or near, full load.

On-off cycling and capacity modulation that occurs throughout the day, in response to the cooling load of the building, mean that most chiller systems only operate in their most efficient range for less than 25% of the time.

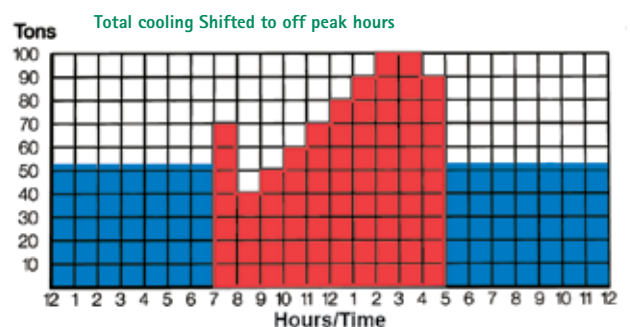
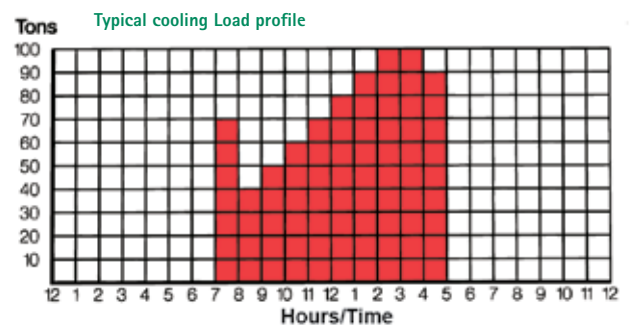
Lower Maintenance Costs

Fewer, smaller chillers mean less moving parts and therefore lower maintenance. CALMAC storage tanks are rust proof and virtually maintenance free.

Save money on Design and Capital Equipment

Most conventional designs allow for a 20% "safety factor" to accommodate exceptional circumstances or equipment failure, which is rarely used.

Ice Storage is a much more efficient cooling system. The "safety factor" can often be accommodated using smaller, more efficient chillers and adopting a partial storage model.



Frequently asked Questions about Ice Storage

Q. Is my HVAC project a good Ice Storage application ?

- A. If your building meets at least two of these three parameters, then your project is a good candidate for Ice Storage
- If your HVAC cooling requirements exceed 350kW
 - If you use / plan to use chilled water systems
 - If there is sufficient time to make ice. ie the building is not fully occupied, or requires airconditioning 24 hours a day

Q. Do I have enough space to fit the storage tanks ?

- A. Calmac storage tanks can be located in the basement, on the roof, inside a plant room or outdoors.

A system that provides about 30% of a buildings total cooling only requires 0.25% of the gross lettable space for storage tanks.

The energy savings that will be achieved, even when using a Partial Ice Storage system, will effect a payback period that makes thermal storage a viable option for most buildings.

Q. Why should I choose Calmac?

- A. • CALMAC is the only manufacturer who's core business is ice-based energy storage.

- CALMAC technology has been proven in over 3000 installations in 36 countries.
- CALMAC offer unrivaled engineering support to their customers
- CALMAC tanks are backed by a 10 year warranty, the best in the business
- CALMAC tanks come in a variety of sizes. They are perfect for restricted spaces or retrofit applications.
- CALMAC stores more, in less space, for less!
- CALMAC Ice Storage systems allow you to save energy and obtain LEED credits.

Q. Are Ice Storage systems easy to install?

- A. Ice Storage use standard airconditioning chillers. The modular tanks are simple to install and easy to use.

Q. Are Ice Storage installation costs comparable to traditional systems?

- A. Yes. Rightsizing the equipment required for Ice Storage allows you to use smaller chillers which typically offset the additional costs of the storage vessels.

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