

ICaXTM ltd

Integration of Renewable Technologies

Where are the synergies?

Edward Thompson



GSHP outperforms ASHP
because
it has access to (relatively) warm ground in a cold winter.

Other things that can improve the performance of GSHPs:

- Asphalt Solar Collectors
- Solar recharge of Thermalbanks
- Energy Management Systems

Suffolk One - £65m Sixth Form College

Doubles the performance of heat pumps
by starting with warmth from Thermal Banks



Suffolk One

Solar Collector Array in construction – bus turning area



Suffolk One

Solar Collector Array in construction – bus turning area



Pex piping is embedded in the road surface

Case Studies

Suffolk One - £65m Sixth Form College

Solar Collector Array – bus turning area



Solar energy is collected from the bus turning area and transferred to ThermalBanks in summer. GSHPs have access to a warm ThermalBank in winter.

Case Studies

Solar Collector melts snow – February 2012



Release of heat back to the surface melts snow in February 2012

Wellington Civic Centre

£8.5m Redevelopment

Solar Roof Collector – Integral Solar Collector



Pitched roof solar collector:
Collects solar energy to heat ThermalBank in summer,
- as well as keeping the rain out.

Wellington Civic Centre

£8.5m Redevelopment



Interseasonal Heat Transfer

ICaXTM
RED

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Energy Management System controls:

Pitched Roof Solar Collector
Ground Source heat pumps
Air Source Heat Pumps
ThermalBanks

To regulate temperatures in:

Swimming pool
Showers
Changing rooms
Offices
Coffee shop

Interseasonal Heat Transfer

Integrates renewable technologies:

Solar Thermal Collection
Seasonal Heat Storage in Thermalbanks
Heat pump delivery

Economic Renewable Energy



Merton Intergenerational Centre

ICAX Skid, controls system energy flows

Interseasonal Heat Transfer

Intrabuilding Heat Transfer



Interseasonal Heat Transfer

Integrates renewable technologies:

Solar Thermal Collection
Seasonal Heat Storage in Thermalbanks
Heat pump delivery

Economic Renewable Energy

