icax™ ltd

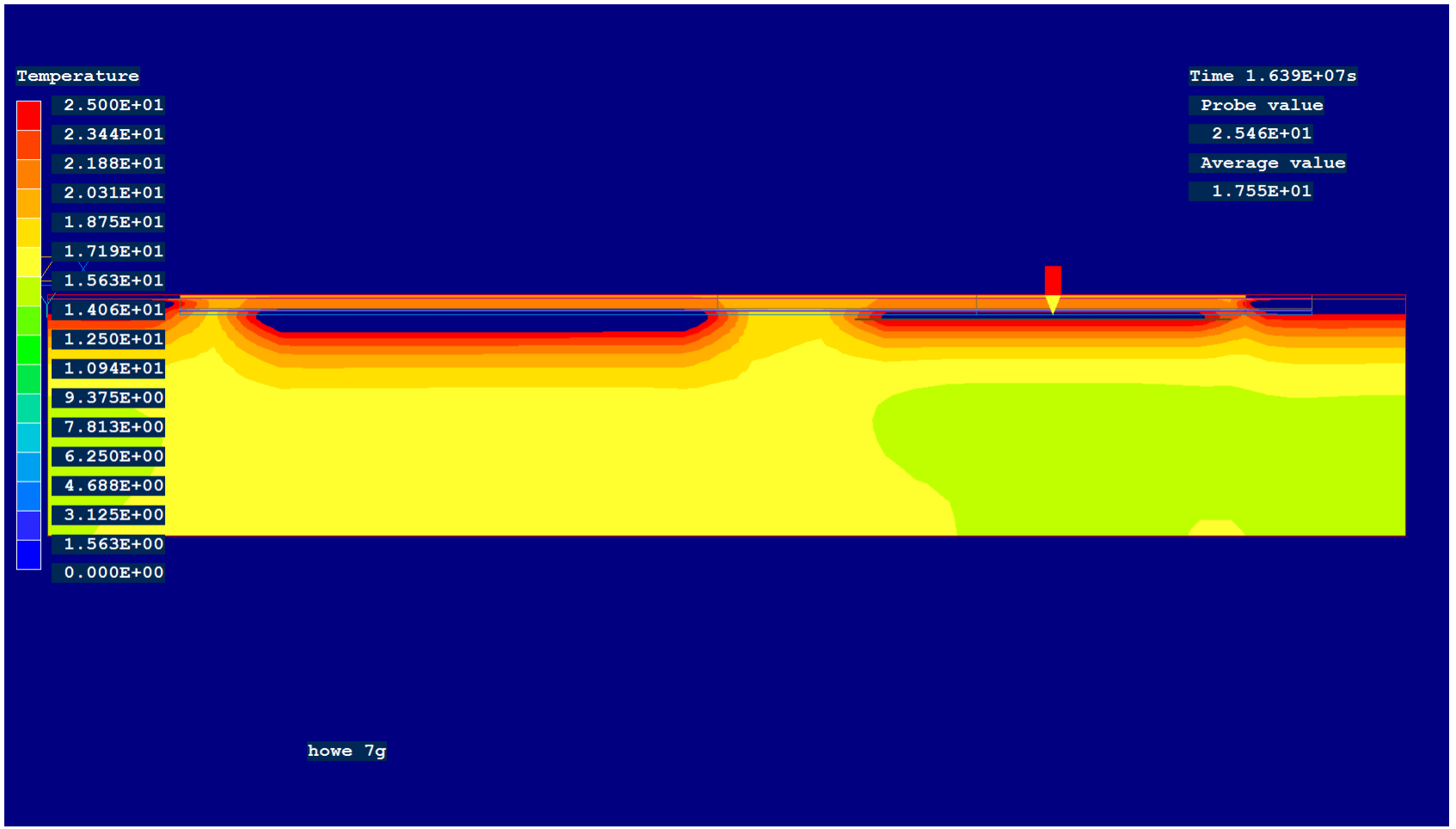
# INTERSEASONAL HEAT TRANSFER

Edward Thompson, Director

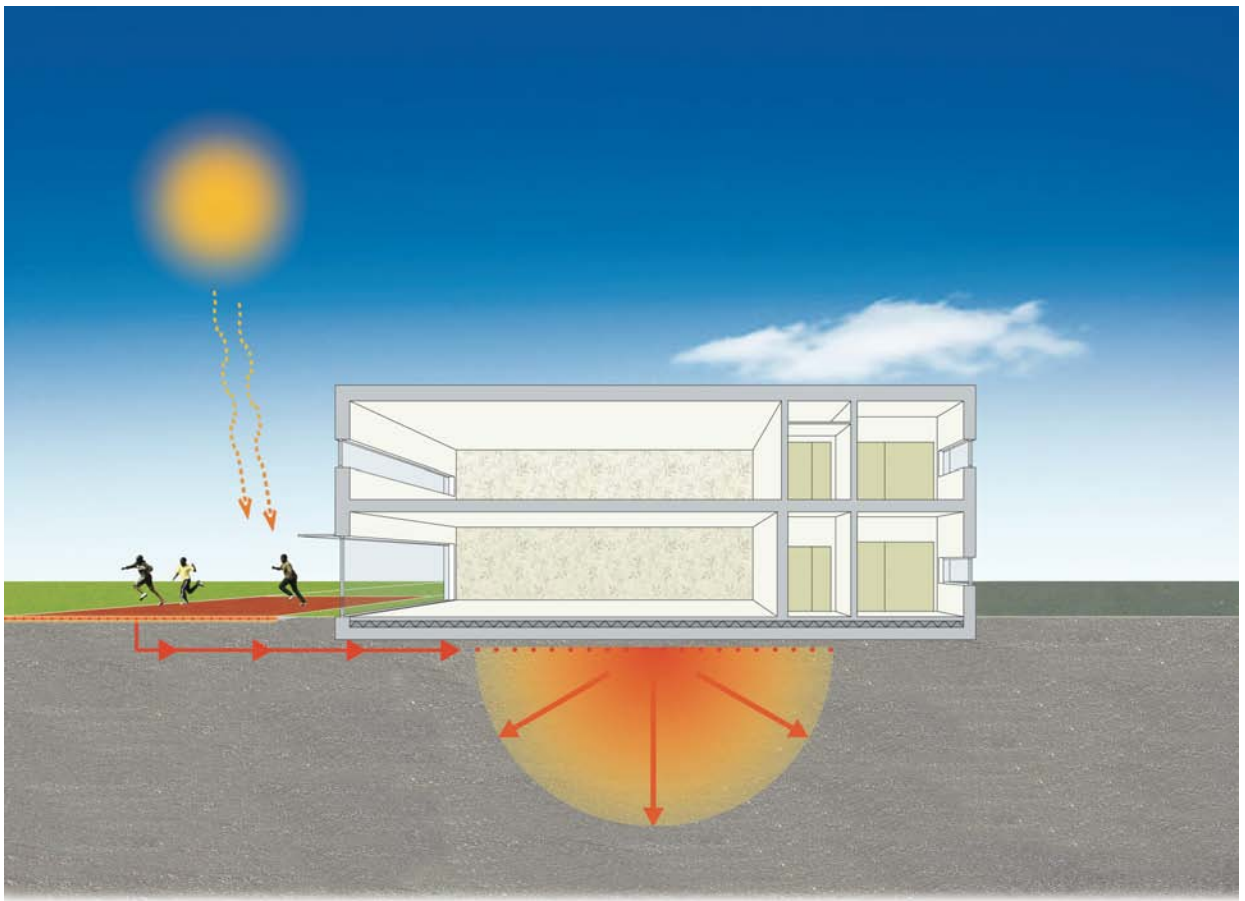
Winchester 19 September 2008

## ICAX - Who We Are

Specialists in the modelling, design and delivery of **Interseasonal Heat Transfer**, a patented technology

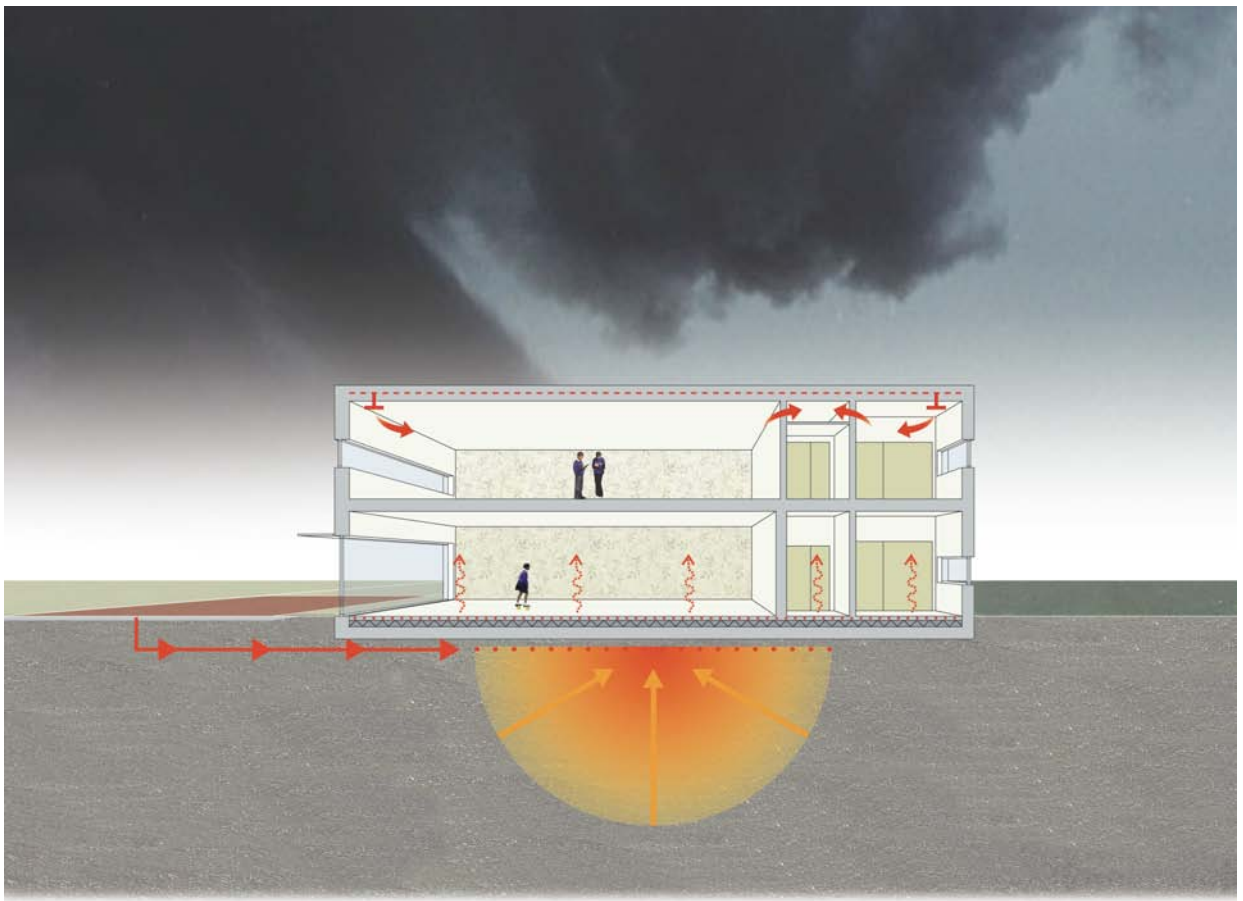


# ICAX - How IHT works



IHT collects heat from the solar collector and transfers it to
the ThermalBank beneath the insulated foundation of the building.

# ICAX - How IHT works

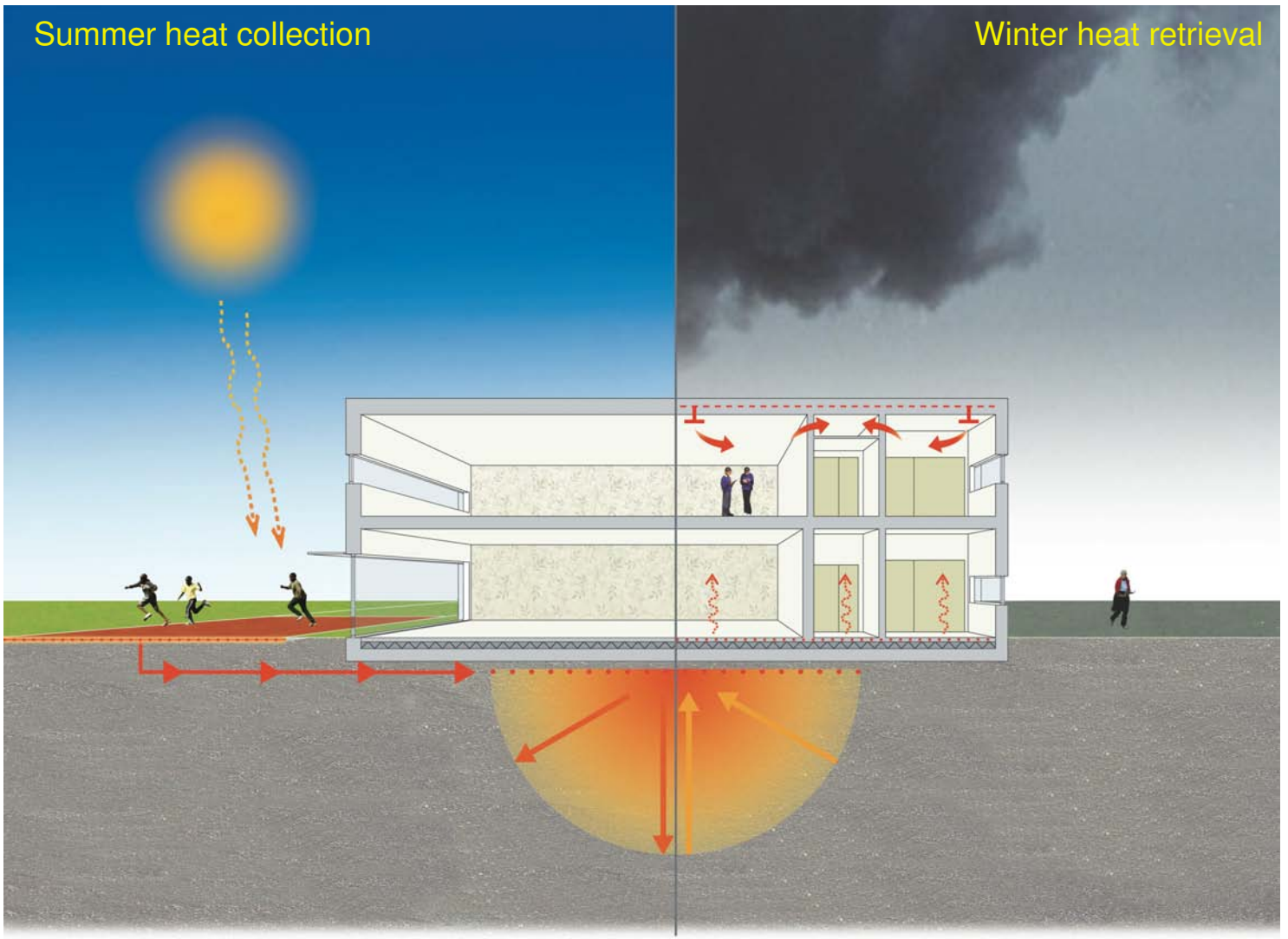


During the winter the heat is transferred from the ThermalBank up to the school
- without burning fossil fuels

## Where Can IHT be Applied?

By using built fabric (buildings and urban infrastructure) IHT is useful at the urban and building scale.

# Delivered projects - Howe Dell School



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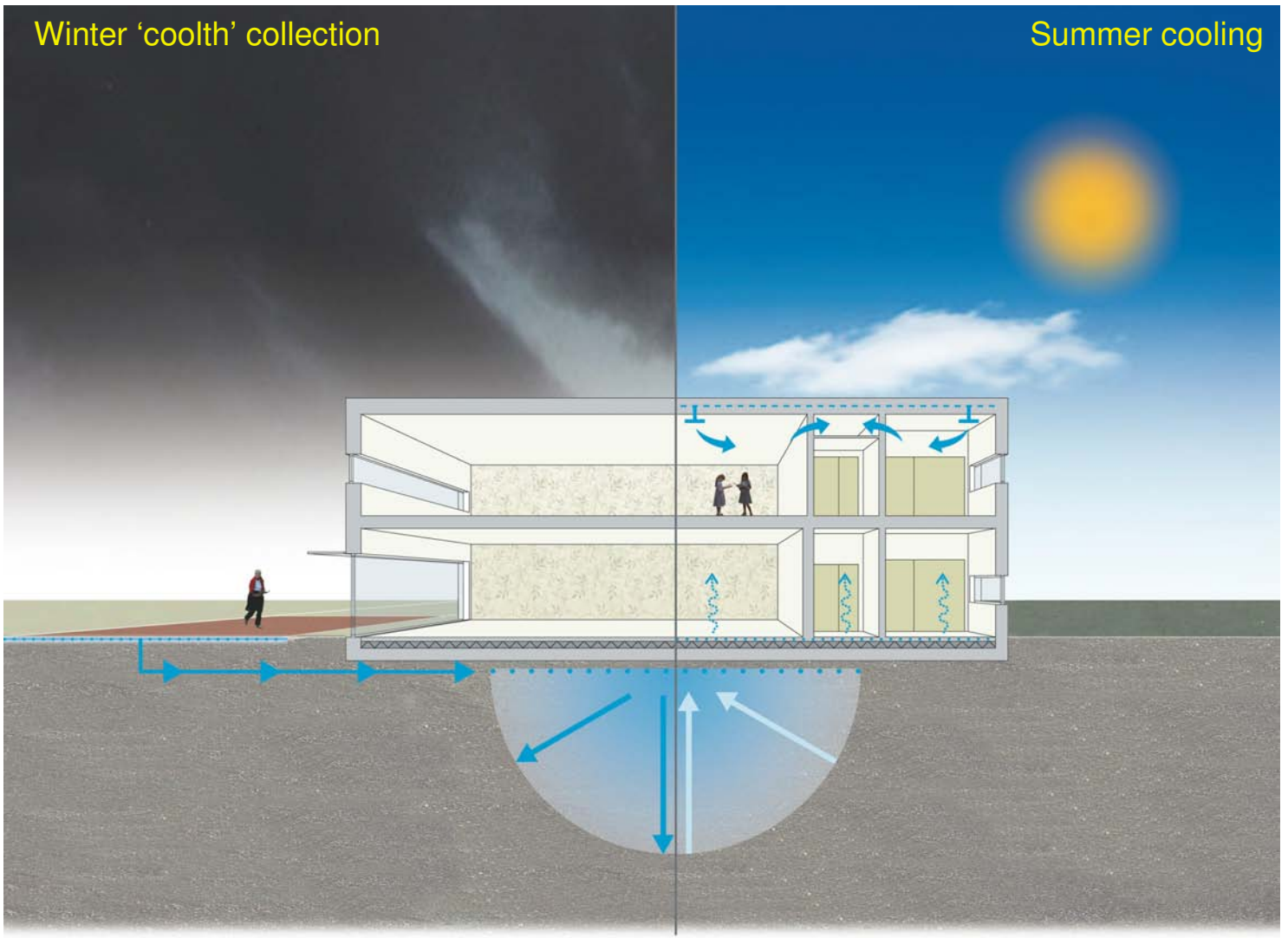
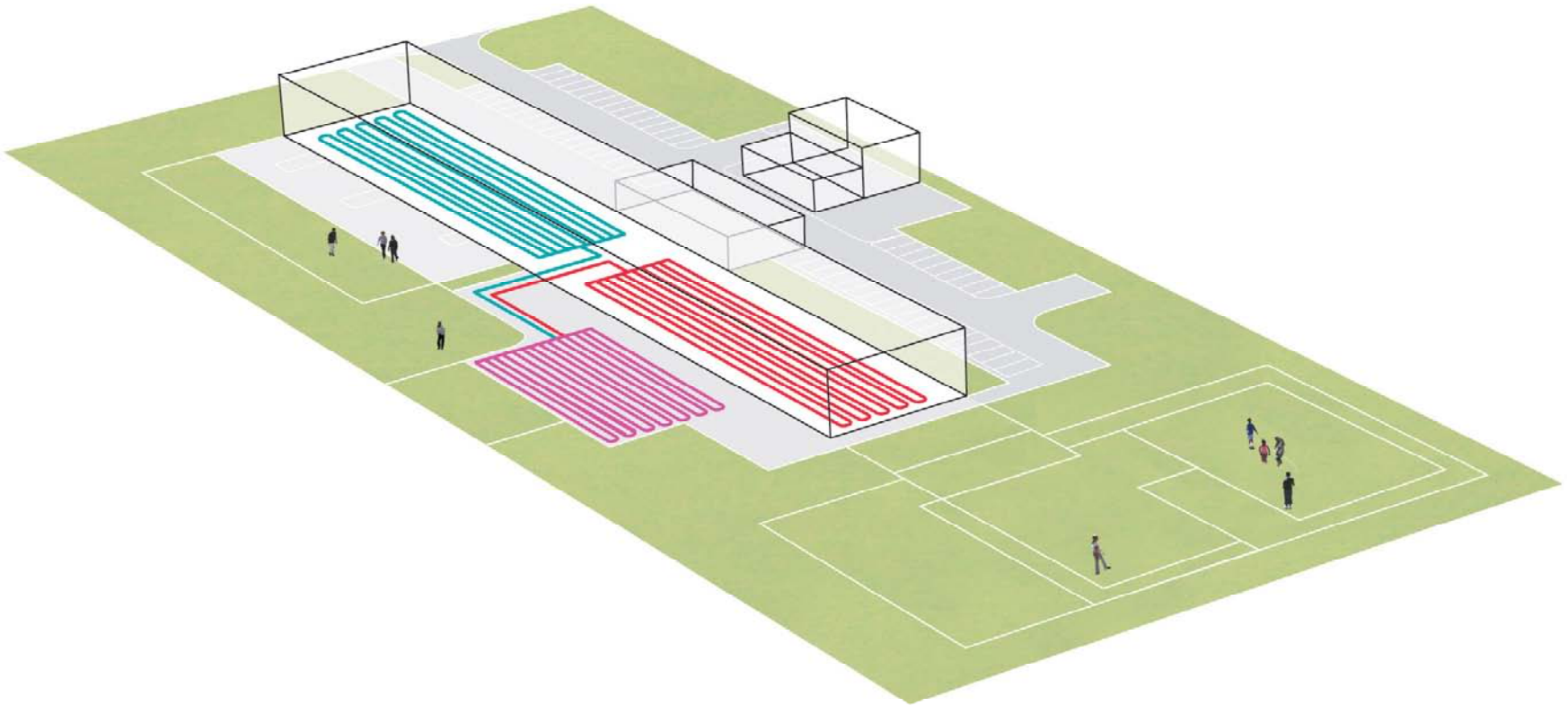


## Delivered projects - Howe Dell School



ICAX for schools

Demonstration project for the Carbon Trust: Howe Dell School: 3,484m$^2$

Collector area: 550m$^2$ Store area: 750m$^2$

## Delivered projects - Howe Dell School

Construction of the Solar Collector array beneath the playground

## Delivered projects - Howe Dell School

Construction of the ThermalBank array (beneath the school)
Image credit: courtesy www.icax.co.uk

# Delivered Projects - Howe Dell School

Solar Collector and ThermalBanks
Image credit: Phil Eaton

# Delivered projects - Howe Dell School

# Delivered projects - Howe Dell School

# Delivered Projects - Toddington demonstration for the Highways Agency

# Toddington demonstration for the Highways Agency

## ICAX Solar Road Systems

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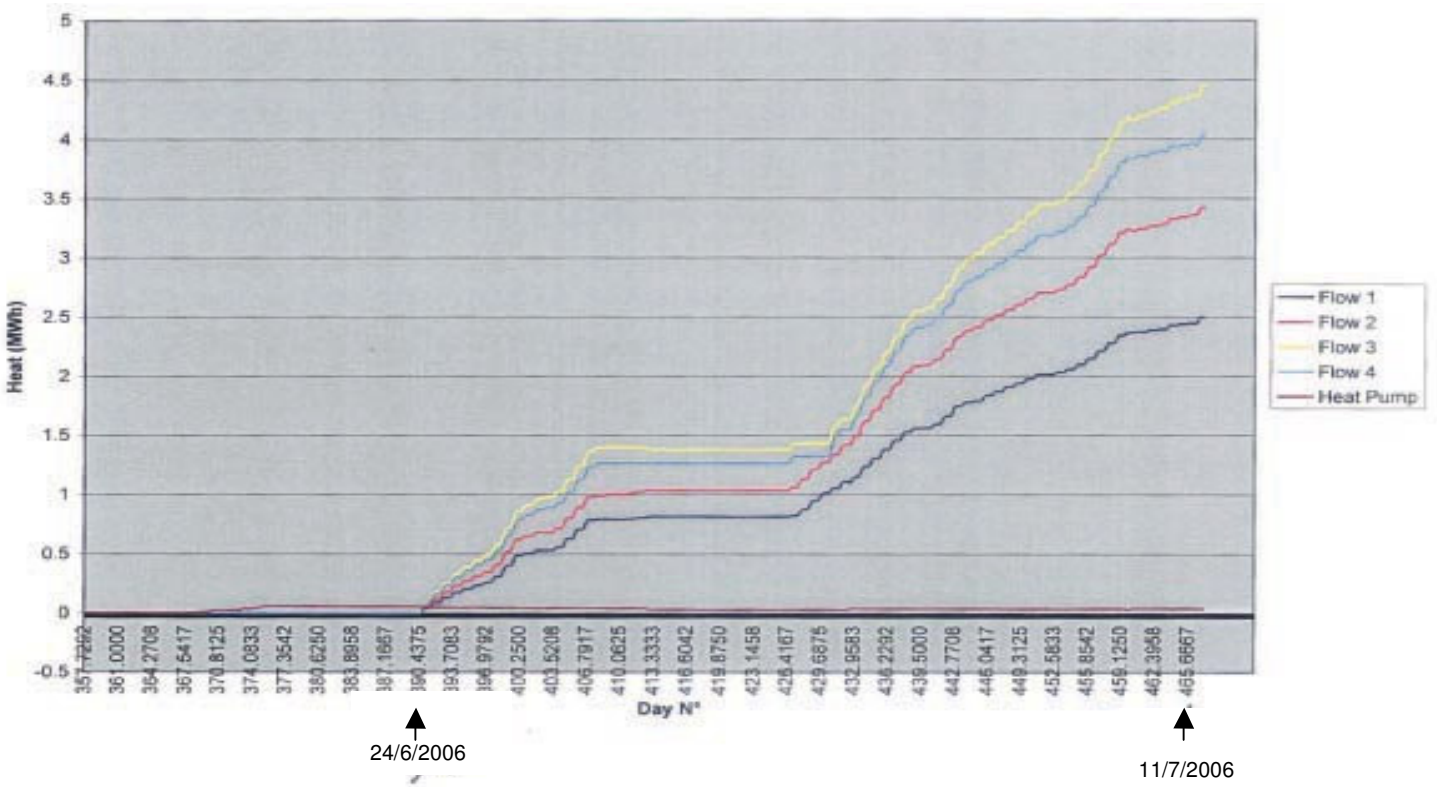
# Delivered Projects - Toddington demonstration for the Highways Agency

- **Toddington Demonstration**
  The graph shows the heat transfer profiles through the ground in both of the ThermalBanks over the first part of summer 2006. IHT banked 6MWh of energy in 16 days.



# Delivered Projects - Toddington demonstration for the Highways Agency

DAILY MIRROR, Thursday, May 19, 2005 PAGE 25

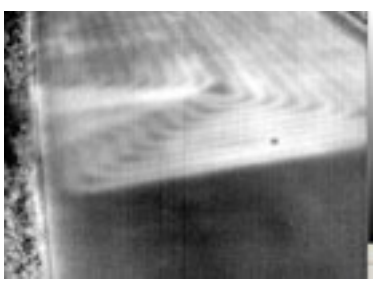
THE M WARM

Motorway is first UK road to try out undergound heating

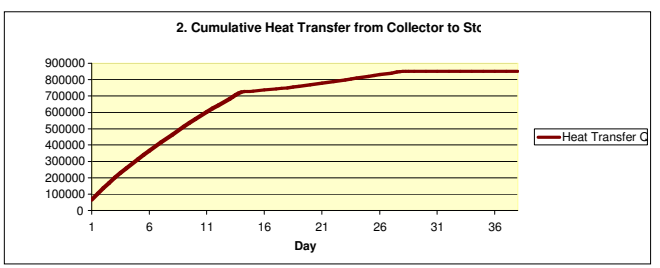
By RICHARD SMYTH

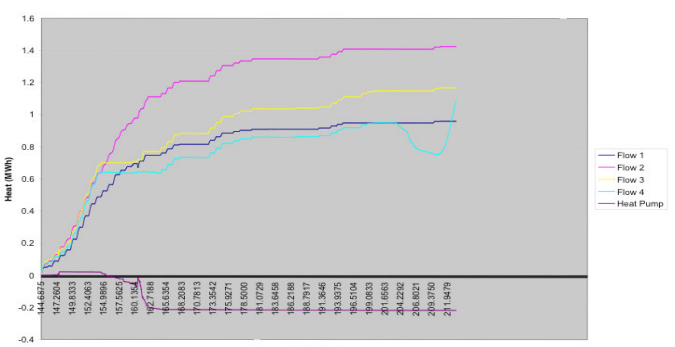
THE M1 is to become the first road in Britain to get a revolutionary underground heating system to stop it freezing over.

- **Toddington Demonstration**
  From the performance monitored over the winter of 2006 (which corroborates the cfd design software) we are able to see that the icax IHT™ system can maintain road (or runway) surfaces above freezing, solely on the solar energy collected and stored.



Thermal image showing pipe array installed in road January 2006, courtesy TRL Limited



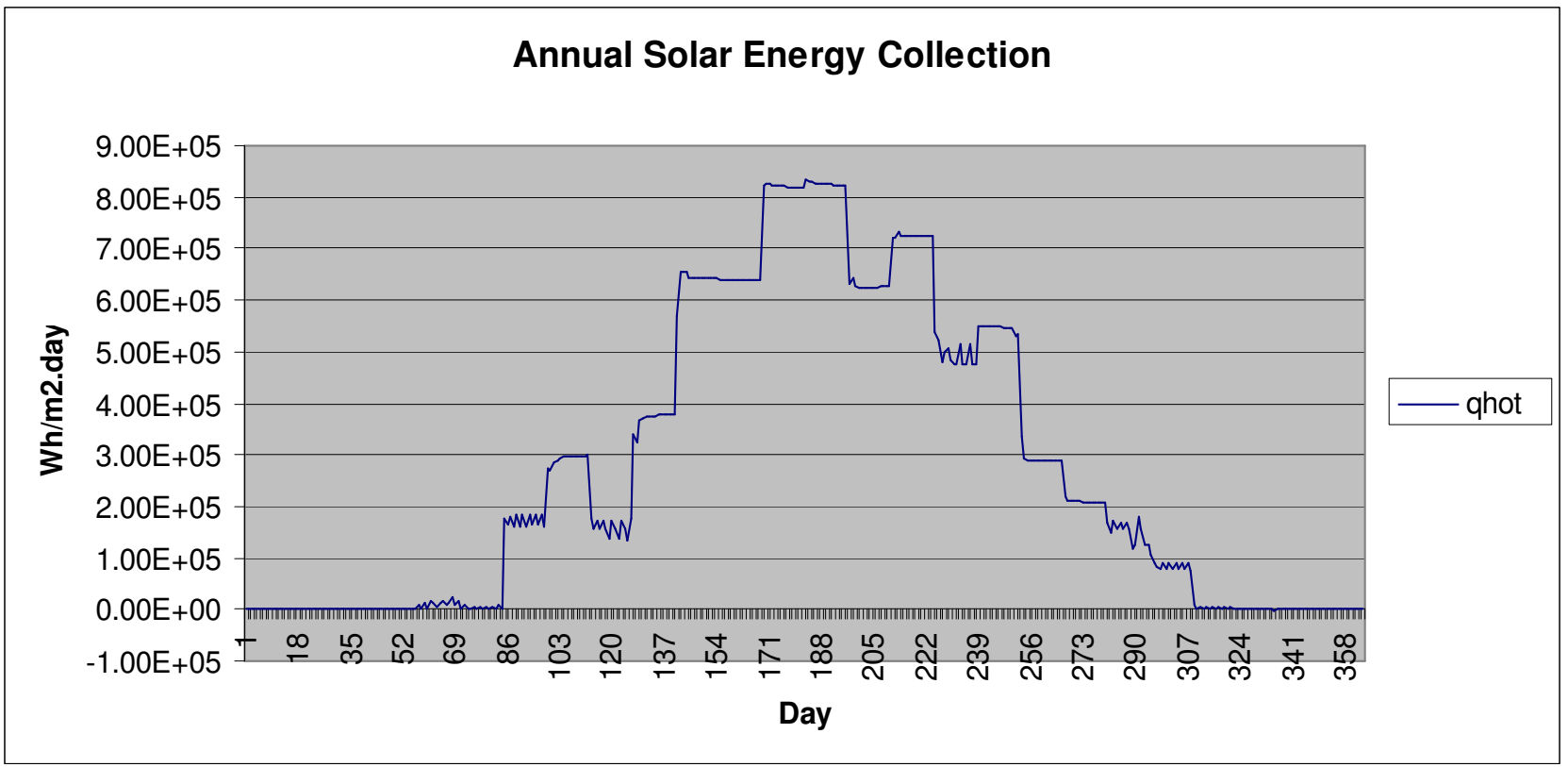




Comparison of predicted (top) with measured (below) performance of energy collection during September 2005.

## Delivered Projects - Misawa demonstration, Hiroshima Japan

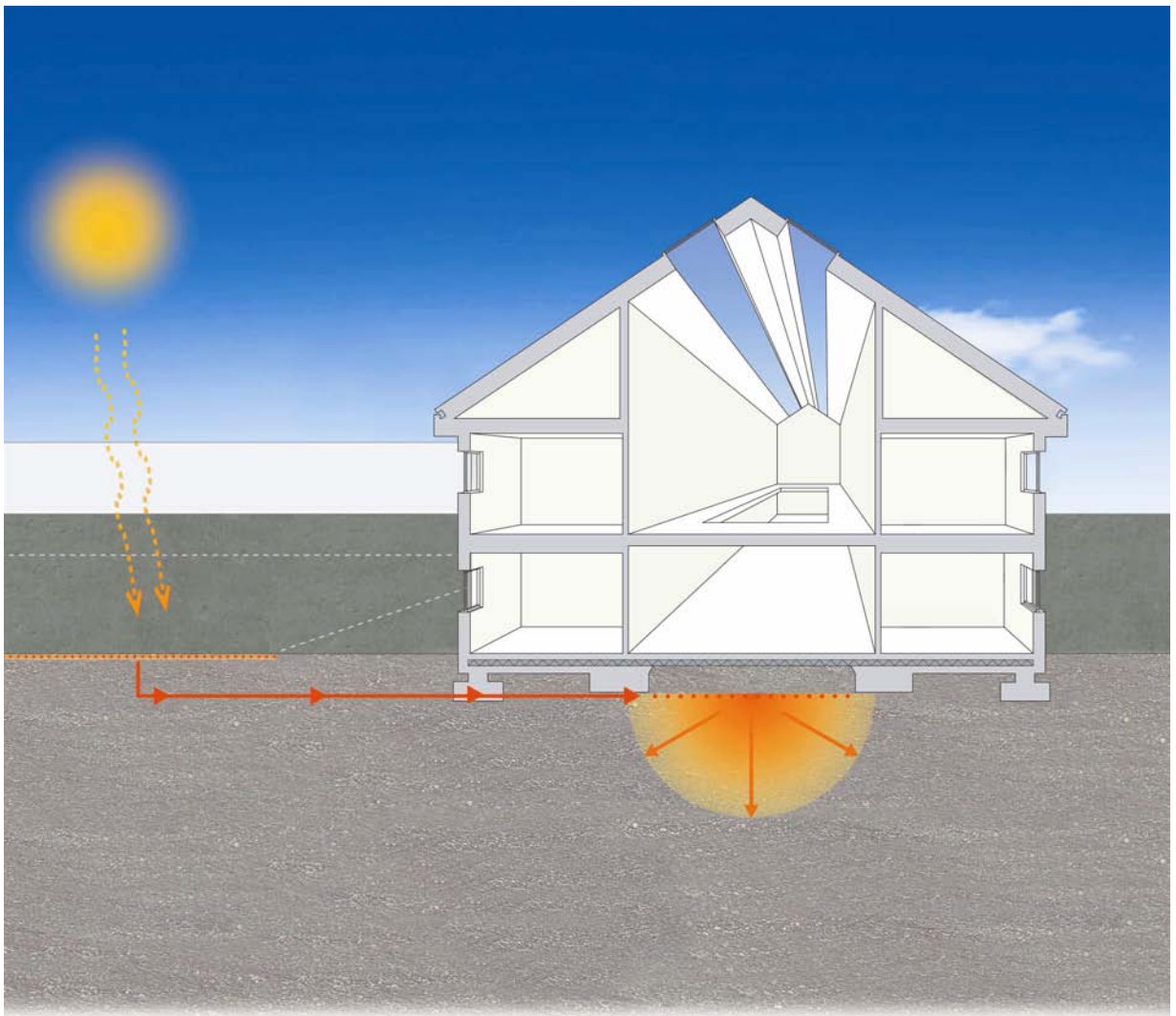
## What is the Energy Benefit?

- Direct Solar Pre-heat curve



## IHT for Prison House Blocks

- Improved GSHP performance through IHT increased store temperature



# IHT for Prison House Blocks

icax™ ltd

INTERSEASONAL HEAT TRANSFER
cooperates with nature
to provide natural heating and cooling
without costing us all the earth.

ICAX is ready to help you aim for zero
carbon buildings.

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# INTERSEASONAL HEAT TRANSFER

## THERMALBANKS

www.icax.co.uk

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