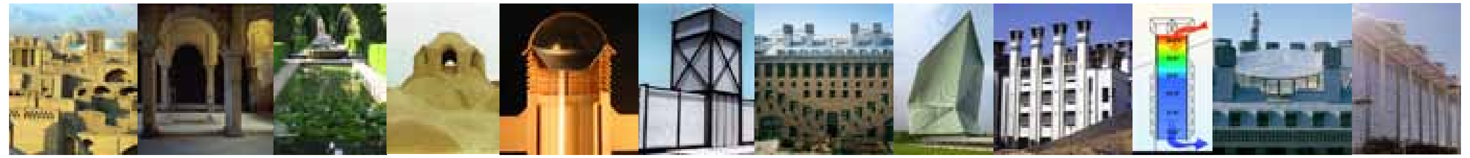
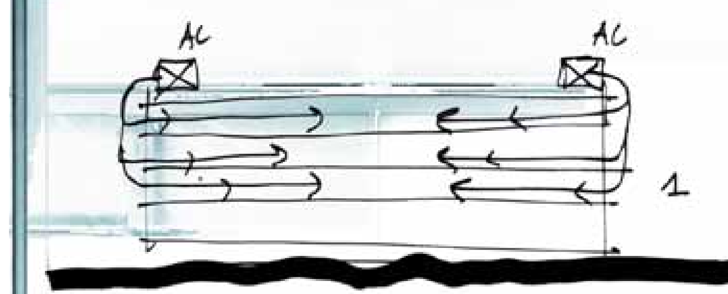
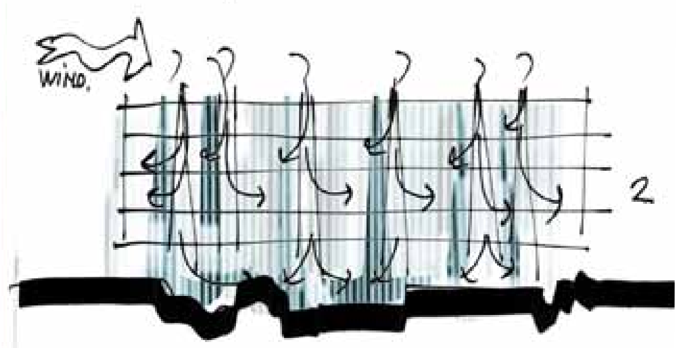
COOLING WITHOUT AIR- CONDITIONING - UK SYMPOSIUM



The London Symposium will take place at UCL, in the Wilkins Gustave Tuck Lecture Theatre, Wilkins Building, located in Gower Street, WC1E 6BT. Information about the venue can be found in our website www.nottingham.ac.uk/sbe/confer/phdc



FROM A/C TO PDEC TOWERS!



COOLING WITHOUT AIR- CONDITIONING

PHDC

07.01.10 & 08.01.10 London, UK

SPAIN CHINA MALTA GREECE ITALY UNITED KINGDOM INDIA

Supported by

Coordinators

A two-day symposium | The final conference out of a world wide series on passive and hybrid downdraught cooling systems in buildings

WHAT IS PHDC?

Downdraught cooling is an energy efficient alternative to conventional air-conditioning in buildings, and relies on the effect of gravity to create a downdraught, and thus circulate air from the source of cooling to the occupied zone within the building. The source of cooling may be either 'passive' or 'active', or a combination of the two, and hence the term 'Passive & Hybrid Downdraught Cooling' (PHDC).

PHDC has the potential, demonstrated through the successful operation of a number of buildings around the world over the last 15 years, to achieve very significant savings in electrical energy. Fans, which may account for 25-35% of the electrical energy required in a conventional air-conditioned building, are avoided. In hot dry regions, energy savings can be further increased (by 5-10%) by evaporating water within the air-stream to create the downdraught, known as 'Passive Downdraught Evaporative Cooling' (PDEC).

A hybrid downdraught cooling system combines both 'passive' and 'active' downdraught cooling techniques. Such a system can then function in both hot and dry conditions (using PDEC) and warm and humid conditions (using chilled water cooling coils or de-humidifier), and is therefore applicable in many locations around the world, including the UK.

THE PHDC PROJECT

The PHDC Project is funded by the European Commission under the 6th Framework Programme. Eight partners, coordinated by the University of Nottingham Department of the Built Environment, have undertaken a global review of research and practice in this field. The results of this review have been compiled into a 'Design Sourcebook' which provides a 'state of the art' summary, and guidance for architects and engineers. The sourcebook also includes two software tools which will enable architects and engineers to predict energy and environmental performance and to assess the affects of design changes on performance. The draft Sourcebook and software will be available free of charge to all delegates to the symposium.

By attending the International Symposium one will be able to gain significant insight into recent developments and applications of PHDC around the world.

The Symposium will introduce different approaches to downdraught cooling and illustrate this by reference to case study buildings around the world. The market for PHDC in Europe, India and China, and life-cycle costs will also be addressed. Climatic applicability and design strategies and rules of thumb will be discussed prior to the introduction to the software tools in the workshop. In London, and special session will review the design and performance of the School of Slavonic and Eastern European Studies, UCL, to which a visit is planned for the Friday afternoon.

THURSDAY 7th JANUARY
PROGRAMME

FIRST SESSION
Chair: Prof. Simmos Yannas, AA.

09.00 Coffee and registration.

09.30 Welcome – Professor Tadj Oreszczyn UCL

09.40 Keynote Introductions from an Architect and an Engineer

09.40 Mario Cucinella, MCA, Italy (tbc).

09.45 Max Fordham, MFA, London (tbc).

10.00 What is PHDC? Why is it important? – Prof. Brian Ford, University of Nottingham, UK.
Introduction to Passive and Hybrid Downdraught Cooling.

10.30 Tea & Coffee Break.

11.00 Applicability to new buildings – Elizabeth Francis, MCA, Italy.
Case studies.

11.30 Applicability in Europe & USA – Dr. Rosa Schiano-Phan, University of Nottingham.
Case Studies.

12.00 Market Projection & Financial Analysis - Paul Thomas, Davis and Langdon Consultancy UK, DLC.

12.30 Panel Session - All.

13.00 - 14.00 LUNCH

SECOND SESSION
Chair: Prof Derek Clements-Croome

14.00 Climatic applicability & Performance Analysis – Professor Servando Alvarez Association of Research and Industrial Cooperation of Andalucia, Spain, AICIA. Comfort & energy

14.30 Case Study: The Malta Stock Exchange - Joanna Spiteri Staines - Architecture Project, Malta.

15.00 Designing Downdraught Cooling Systems – Design Strategies and Rules of Thumb. – Brian Ford, UNOTT

15.30 Panel Session - All.

16.00 Tea/coffee break and exhibition

THIRD SESSION
Chair: Prof Brian Ford University of Nottingham

16.30 The School of Slavonic and East European Studies, London - Design & Performance

17.00 Professor Alan Short, University of Cambridge

17.30 Dr. Malcolm Cook, Loughborough University.

18.00 Feedback Session - All.

18.30 Close.

FRIDAY 8th JANUARY
PROGRAMME

NOTE: All workshop participants need to bring personal laptops with software loaded. Software will be available on Day One

CHAIR : Thierry van Steenberghe, REHVA

09.00 Coffee and registration

09.30 Performance Analysis Workshop Part 1 – Professor Servando Alvarez, AICIA
Example Project

11.00 Tea and Coffee Break

11.30 Example project Workshop Part 2 - Professor Servando Alvarez, AICIA
Getting to Grips With the 'PHDC Airflow' Tool and the 'Comfort and Energy' Tool

12.30 Feedback Session - All

13.00 - 14.00 LUNCH

14.00 Visiting SSEES Building at UCL

16.30 Close

HOW DO I REGISTER?

If you would like to participate in the two-day symposium, please email us to request a registration form, to:
Jing.Wang@nottingham.ac.uk, or to
Mirentxu.Ulloa@nottingham.ac.uk.

Registration fee is £100. This includes an electronic copy of the draft Design Sourcebook and Software Tools + lunch for both days, and refreshments.

Participants are requested to bring a fully charged laptop with them on the second day of the event, which will include an interactive workshop.

Please note that limited seats are available and therefore registration occurs on a first come first serve basis.

LONDON SYMPOSIUM IN COLLABORATION WITH:

University College London - UCL
The Chartered Institution of Building Services Engineers - CIBSE
International Building Performance Simnulation Association - IBPSA England

PHDC INTERNATIONAL PARTNERS:

University of Nottingham, United Kingdom - UNOTTS
Mario Cucinella Architects, Itally - MCA
Architecture Project, Malta - AP
Davis Langdon Consultancy, United Kingdom - DLC
Federation of European Heating & Air-Conditioning Associations – REHVA
Association of Research and Industrial Cooperation of Andalucia, Spain – AICIA
Abhikram Architects, India
Shanghai Research Institute of Building Sciences, China - SRIBS