



PHDC

25.06.09 & 26.06.09 St James Cavalier, Valetta, Malta

COOLING WITHOUT AIR-CONDITIONING

SPAIN CHINA MALTA ITALY GREECE UNITED KINGDOM INDIA

A two-day symposium | The 3rd conference out of a world wide series on passive and hybrid draught cooling systems in buildings

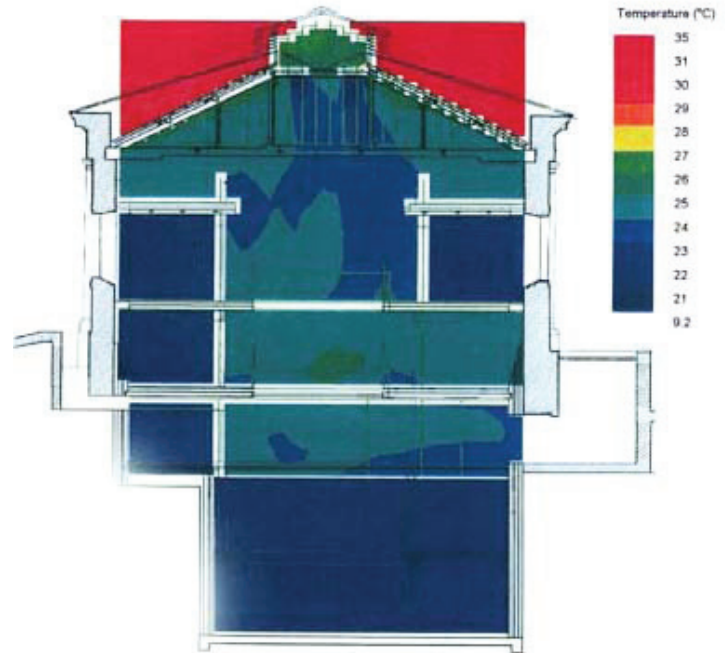
WHAT IS PHDC?

PDEC 'Passive Downdraught Evaporative Cooling' is an environmentally friendly alternative (in whole or in part) to air conditioning that can be installed in new or existing buildings.

PDEC avoids the need for ductwork, fans and suspended ceilings, and the need for refrigerant-based cooling. It uses the negative buoyancy of cold air to drive airflow through the building. One of the primary mechanisms used is the evaporation of water. During the evaporation process of the water the air temperature is reduced causing it to flow downwards.

In some cases it might be appropriate to combine some of the mechanical installation features with a downdraught system to widen applicability and scope of the system hence (PHDC, Passive Hybrid Downdraught Cooling).

PHDC can be adapted to suit particular building requirements and local conditions and its use can potentially produce substantial energy and CO₂ saving.





THE PHDC SYMPOSIA

Public, commercial and global research interest in the delivery of 'zero carbon' buildings has never been higher and the adverse energy and environmental impact of conventional air-conditioning has clearly been demonstrated. Passive cooling and energy efficient design can substantially reduce reliance on fuel based heating and cooling, contributing to the European target energy saving.

Research in this area, which has been supported by the European Commission, includes the current research project on 'Passive Hybrid Downdraught Cooling' in non-domestic buildings (PHDC).

By attending the International Symposium one will be able to gain added and significant insight into the recent developments and applications of the system around the world as a passive alternative to mechanical cooling.

Visiting the 'Mata Stock Exchange' building will provide an opportunity to showcase a recent application of downdraught cooling.

For more information and for registering to the event please visit www.phdc.eu/events/

LIST OF SPEAKERS AND PARTICIPANTS

Prof. Brian Ford University of Nottingham, UK – UNOTT
Elizabeth Francis Mario Cucinella Architects, Italy – MCA
Joanna Spiteri Staines Architecture Project, Malta – AP
Paul Thomas Davis Langdon Consultancy, UK. – DLC
Thierry Van Steenberghe European Federation of Heating & Air-Conditioning Associations – REHVA
Prof. Servando Alvarez Association of Research and Industrial Cooperation of Andalusia, Spain – AICRA

THE MALTA SYMPOSIUM

The Malta symposium is the third event held in a series of world wide symposia which discuss the nature of passive and hybrid draught cooling systems in buildings. The series of conferences have previously been held in Spain and China, and will take place in Italy, Greece the United Kingdom and India in the coming months after the Malta symposium which will take place on the 25th and 26th June 2009

PROGRAMME AGENDA DAY ONE 25th June SYMPOSIUM MALTA

MORNING SESSION

9:00 Coffee and registration

CHAIR: HELGA PIZZUTO, PRESIDENT OF THE CHAMBER OF ENGINEERS

9:30 Welcome – Alberto Miceli Farrugia, Architecture Project, AP

9:40 Keynote Intro

10:00 What is PHDC? Why is it important? – Prof. Brian Ford University of Nottingham, UK

Introduction to Passive and Hybrid Draught Cooling

10:30 Tea & Coffee Break

11:00 Applicability to new buildings – Elizabeth Francis,

Mario Cucinella Architects, Italy

Case studies

11:30 Applicability in India & USA – UNOTT

Case Studies

12:00 Market Projection & Financial Analysis – Paul Thomas, Davis and Langdon Consultancy UK, DLC

AFTERNOON SESSION

12:30 – 14:00 LUNCH

CHAIR: VINCENT CASSAR, PRESIDENT OF THE KAWARA TAL-PERITI

14:00 Climatic applicability & Performance Analysis– Prof. Servando Alvarez-

Association of Research and Industrial Cooperation of Andalusia, Spain,

AICIA

Comfort & energy

14:30 Stock Exchange Case Study

Joanna Spiteri Staines, Architecture Project, AP

Brian Ford, University of Nottingham, UNOTT

Anthony Cardona, Malta Stock Exchange, MSE

Joe Demanuele, MTS Operan

15:30 Discussion

16:00 Tea/coffee break and exhibition

18:00 DINNER

AGENDA DAY TWO 26th June

TECHNICAL WORKSHOP MALTA

MORNING SESSION

JOHN EBEJER, BUILDING INDUSTRY CONSULTATIVE COUNCIL :CHAIR

Designing PHDC Systems – MCA/UNOTT 9:30

Introduction to Sourcebook

Rules of thumb

Performance Analysis Tool – AICA 10:00

Example project

Tea & Coffee Break 10:30

Session One - Workshop exercise/Site visit to Malta Stock Exchange 11:00

Session Two - Workshop exercise/Site visit to Malta Stock Exchange 12:00

Getting to grips with the performance tool

Discussion/Feedback – ALL 13:00

Close 13:30



CASE STUDY FOR MALTA

Each of the following buildings have been taken as examples for study in the context of the discussion of the symposium. The Malta Stock Exchange will feature as an on-site case study, where a site visit will allow the conference participants to fully comprehend the cooling system which was designed for the building. The system, which was designed in 2001, was the first passive and hybrid draught cooling system to be operated in the European Union.

Sandra Day O'Connor Federal Courthouse, Phoenix, AZ

Department of Global Ecology, Stanford University

Kenilworth Junior High School, Petaluma, CA

Zion National Park Visitor Centre, Springdale, Utah

School of Slavonic and East European Studies, London

The Blaustein Institute for Desert Research, Israel

The Stock Exchange, Valletta, Malta

The Torrent Research Centre, Ahmedabad, India

Sohrabji Godrej Green Business Centre, Hyderabad

The Confederation of Indian Industries TQ M Centre, Bangalore, India

MALTA STOCK EXCHANGE

At the design stage of the Malta Stock Exchange - as a refurbishment of an existing building - concerns were expressed that proposals for cooling the main large volume may lead to either very intrusive ductwork or large fan coil units within the spaces themselves. The objective was to propose a cooling strategy for this main large space with minimum reliance on mechanical and electrical (M&E) equipment. During summer days the proposal was to exploit draught cooling which was induced in a column of air by either evaporative cooling by means of hydraulic nozzles ('micronisers') or direct cooling by means of chilled water coils. Previous work suggested that a combination of these techniques was both technically and economically viable for many locations in southern Europe. The distribution of cool air with both techniques is from high level to low level and the pattern of resulting air temperatures and air velocities within the space is strongly influenced by the geometry of the major spaces. In addition, during summer nights the project exploits convective night ventilation whereby air at low night-time temperatures removes heat built up during the day within the walls, floors and roof of the building. The objective in combining these ventilation and cooling strategies is to provide a comfortable internal environment with minimum reliance on M&E equipment. The air volume flow rate is influenced by the size of openings at high and low level and by the resistance imposed on these openings by louvers, motorised dampers, cooling coils, etc.

The project began in 1998 and was completed in 2001. The architects were Architecture Project, Valletta, Malta; the structural Engineers, TBA Periti; environmental consultants, Brian Ford Associates, London, United Kingdom; environmental controls, MTS, Valletta, Malta; lighting: was coordinated by Frank Franjou, whilst fire safety implementations were coordinated by BD Atherson.



HOW DO I REGISTER ?

Project supported by the European Commission. 

If you would like to participate in the two-day symposium simply visit www.phdc.eu and click on SYMPOSIUM REGISTRATION FORM at the bottom of the screen and fill in the required details.

Registration is free and includes lunch on the first day of the symposium. Registration also includes a delegate's pack with free software that will be demonstrated on day two.

A dinner will be held on the evening of the first day of the event at an extra charge of €30.

Participants are requested to bring a 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.

Closing date for registration is Thursday 18th June 2009.

In collaboration with



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