Sustainable Building Design:
Application Of Natural Ventilation
Short Course for Designers
Friday, June 18, 2004 – 8:30am – 4:00pm
150 W. Warrenville Road – Conference Room 602-1219
BP Naperville, Illinois

Presented by faculty of Massachusetts Institute of Technology
Cambridge, MA and
Cambridge University, Cambridge, UK

This course will give practitioners an introduction to natural ventilation, built examples, operating principles and their application to sustainable design and the U.S. The presentation is aimed toward architects and others without in-depth technical training. Simple design tools for performance estimation will also be provided.

The registration form for the course is below. The course tuition is $70. Please contact Ms. Patricia Ashfield, BP-Global Property Management & Services; Tel: 630.821.2186, fax: 630.821.3360 and email: Patricia.Ashfield@bp.com.

Please check back to this page regularly for updates. The class size will be strictly limited; early applications accompanied by payment will receive first consideration. Credit cards cannot be accepted.
CMI Professional Practice Programs
Substantial advances have been made in energy efficiency, comfort and indoor air quality by the coordination of architectural design and natural ventilation. The faculty will describe current natural ventilated buildings along with monitoring results and means to model and visualize natural ventilation for proposed new projects. Particular emphasis will be given to the presentation of simple tools to allow non-technical users to evaluate different technologies and design strategies.

Faculty
The faculty members from Cambridge University and MIT's Schools of Architecture and Engineering have extensive experience in integrating architectural design and technology for naturally ventilated sustainable building projects in the US, Europe, and the developing world.

Course Outline
Overview of sustainable design- advantages
Physical concepts
  • Natural vent
  • Raised floors
  • Controls
Tools for sustainable design/ natural ventilation/ advanced facades
  • Design advisor
  • Hands on demonstrations
Examples: Monitoring results of naturally ventilated buildings in the US and Europe
The Process of Integrated Design
Scale models to simulate natural ventilation
UK examples of scale models used in the design of libraries, classrooms, concert halls
Computer analysis, computational fluid dynamics and simpler multizone methods
Transient and steady state behavior with combined wind and buoyancy forces
Future applications
Leon Glicksman is a Professor of Building Technology in the Department of Architecture as well as Professor of Mechanical Engineering at MIT. He has been the head of the Building Technology Program for the past 10 years. He has worked on research and consulting related to energy-efficient building components and design, indoor air flow and indoor air quality. He has directed several experimental studies of air circulation and buildings which are used as benchmarks for CFD programs in use today. Currently, he is leading an MIT effort to develop energy-efficient, sustainable building technologies and compatible designs. This program is carrying out research on natural ventilation of buildings, building designs to reduce energy use, and integration of energy-efficient measures with indoor air quality considerations.

Les Norford is Professor of Building Technology in the Department of Architecture at MIT. He specializes in energy studies, controls, and ventilation and is seeking to improve the way buildings use the earth's resources. He has been leading a program to monitor naturally ventilated buildings in the US and the UK. Recent work has also included program to optimize the design and operation of buildings to improve performance and energy efficiency.

Andrew Scott is Associate Professor of Architecture at MIT. His works focuses on the understanding of sustainability to the making of built form. He stresses architectural design that represents excellence in design and which is responsive to low energy, climatic contexts, resource efficiency and global environmental change. He has collaborated on a number of sustainable building designs that integrate advanced technologies such as natural ventilation and photovoltaic systems. His research has also considered the design process required to achieve successful sustainable buildings.

Andrew Woods is BP Professor and Head of the BP Institute of Fluid Mechanics at Cambridge University. He is involved in a major project with a special focus on low energy buildings. The research in the institute focuses on the fluid dynamics of air and heat flow through buildings, by combining analogue experimental models with simple quantitative physical models of (i) natural ventilation; (ii) hybrid ventilation; (iii) night cooling; (iv) solar driven ventilation; (v) control systems for natural ventilation. Cambridge University researchers have developed small scale water models that have been used to study natural ventilation in a number of built works.
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Application
Please return this completed application with payment made payable to MIT for $70.00 to:

Ms. Patricia Ashfield
4101 Winfield Road – Mailcode 3E
Warrenville, IL 60555

(Cost includes course material, refreshments and lunch)

____ Please enroll me

____ Please send me information about future programs

Name_______________________________________________
(Print) Last First M.

Tel:____________________ Email:______________________

Position / Title ______________________________________

Business Name_______________________________________

Mailing Address _______________________________________

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Highest degree ______________________

Reasons for wishing to enroll in the program: __________________

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