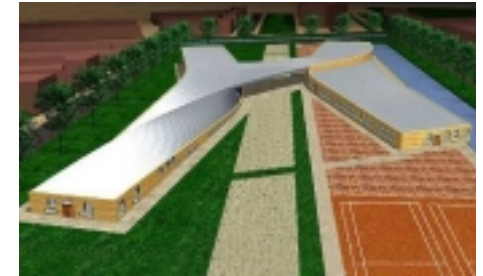


low energy cooling systems
heat air and moisture transport
demand controlled ventilation
integral envelope performance
air flow patterns
environmental performance of buildings
energy efficient communities
multizone air flow modelling
real time HEVAC simulation
ventilation of large enclosures
domestic ventilation systems
daylight in buildings
bringing simulation to application
advanced local energy planning
air infiltration and ventilation
computer aided fault detection
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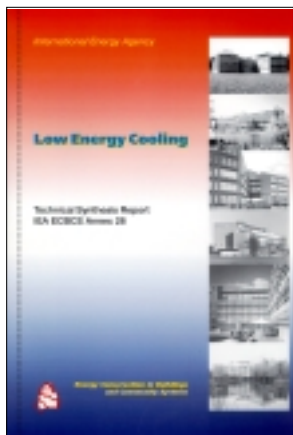
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LOW ENERGY COOLING SYSTEMS

A Technical Synthesis Report

M W Liddament



The project investigated the feasibility and provided design tools and guidance on the application of alternative cooling strategies for buildings. This summary report gives an introductory outline of the results, in an uncomplicated style suitable for experts and non-experts

alike, highlighting the benefits to be gained from low energy cooling. **£20.00**

Case Study Buildings

M Zimmermann, J Andersson (eds.)



Gives detailed descriptions of the eighteen buildings studied in this project. The cooling systems employed include: night cooling/natural ventilation; night cooling/mechanical ventilation; slab cooling (water); slab cooling and heating (water); slab

cooling and evaporative cooling; indirect evaporative cooling; desiccant cooling; ventilated chilled beams; chilled ceiling and displacement

ventilation; ground coupled reversible heat pump; ground cooling (air); aquifer cooling and heating; and sea water cooling. **£34.00**

Design Tools: Technology Selection and Early Design Guidance

Edited by Nick Barnard and Denice Jaunzens
The selection guidance contains a selection chart and summary sheets for the technologies. The early design guidance covers the applicability of evaporative cooling in commercial office buildings; slab cooling systems with water; night cooling ventilation in UK commercial buildings; night cooling in residential building; and ground coupled air systems. **£60.00**

Detailed Design Tools

Henk Roel

This report is a compilation of tools developed for use during detailed design, for application in alternative cooling strategies for buildings. There are a number of different types of tool including component models, air temperature/flow models and control algorithms. The majority are intended to be used as part of, or in conjunction with, simulation software. In general they have been developed using experimental data and/or theoretical relationships. **£50.00**

HEAT, AIR AND MOISTURE TRANSPORT IN INSULATED ENVELOPE PARTS

A Technical Synthesis Report

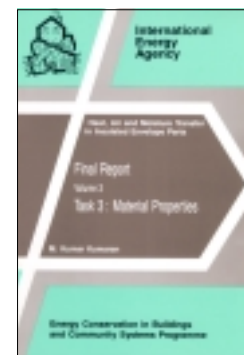
Hugo Hens

Summarises the work of this research project, which aimed to model and study the fundamental

physical phenomena behind, and the consequences of, heat, air and moisture transfer through new and retrofitted insulated envelope parts. It placed special emphasis on energy quality, depending on air tightness, on the hygric behaviour and on the durability aspects of the construction. It is the intention to apply the knowledge gained by this analysis to performance formulation and to checking the design and production of new retrofitted parts. **£20.00**

Material Properties

M Kumar Kumaran



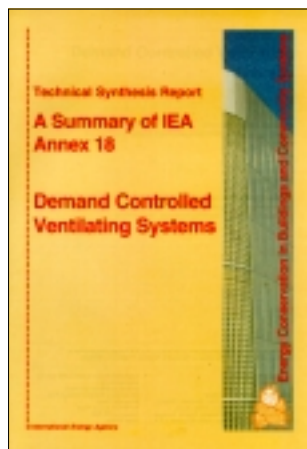
Discusses heat air and moisture transport through building materials and components, and the hygrothermal properties of common building materials. **£20.00**

Performances and Practice

C-E Hagentoft

An examination of the impact of heat, air and moisture transport on energy demand and durability. Chapters cover performances, energy flow through the building envelope, the nature of the increase of heat flow due to HAM-effects and definition of an effective u-value, examples of the effects on energy demand, durability examples of degradation mechanisms, durability performance criteria, and practice methodology. **£20.00**

DEMAND CONTROLLED VENTILATING SYSTEMS



A Technical Synthesis Report.

L G Mansson, S A Svennberg, M W Liddament
Summarises the research into demand controlled ventilation carried out in this project and provides guidelines on the availability, performance and applications of demand controlled technology. **£20.00**

State of the Art Review

W Raatschen (ed.)
Chapters include contaminant levels in various building types, a review of international standards for indoor air quality, and an examination of available sensors. **£12.00**

Sensor Market Survey

W Raatschen
Gives background information on sensors for DCV systems, outlines the sensor test programme and the second market survey on humidity and IAQ sensors, and lists product information on humidity sensors, CO2 sensors, mixed gas sensors, and miscellaneous sensor elements. **£18.00**

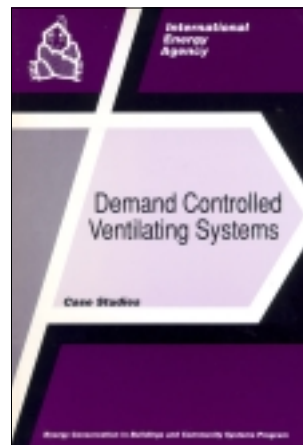
Sensor Tests

P Fahlen, H Andersson
This report gives an outline of the various sensor

types available, then describes the sensors tested in the program, the program methodology and test results. The conclusions discuss the results for VOC, CO2 and humidity sensors. **£25.00**

Case Studies

L-G Mansson (ed.)
The demand controlled ventilation case studies described in this report cover unoccupied rooms, dwellings, a school, auditoria and offices. **£25.00**



Source Book

L-G Mansson, S A Svennberg
This source book is a detailed compilation of information regarding all aspects of demand controlled ventilating systems, covering the DCV approach, pollutants and indicators, sensor types, control principles, feasibility analysis, and aspects of operation and maintenance. Also gives an overview of DCV systems by type of building. **£32.00**

INTEGRAL BUILDING ENVELOPE PERFORMANCE ASSESSMENT

Building Envelopes in a Holistic Perspective: Methodology

by Leo Hendriks and Hugo Hens
Outlines the 'fitness for purpose' rationale, ending with a description of the assessment methodology, including risk analysis. **£50.00**

Development and Optimisation of Building Envelopes for Existing and New Buildings

by Sven Svendsen, Claus Rudbeck, Horst Stopp and Hannu Mäkelä
Applies the methodology to retrofitted and traditional envelope solutions with the emphasis on optimisation. **£20.00**



Advanced Envelopes: Methodology Evaluation and Design Tools

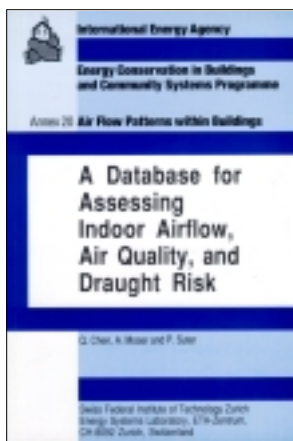
by Paul Baker, Dirk Saelens, Matt Grace, Takashi Inoue
Describes the work of the Advanced Envelopes Thematic Group, and aims to study the impact

of advanced envelopes on whole building performance by applying devised methodology to identify areas which have either a significant impact or a knowledge deficit, via a review of recent work addressing these issues, and through relevant case studies. Explores the strengths and weaknesses of the assessment methodology when applied to advanced envelopes. **£25.00**

Whole Envelope Performance Rating and Laboratory Measurements

by J Christian, F Ali Mohamed, T Ojanen and M de Wit
Forthcoming

AIR FLOW PATTERNS WITHIN BUILDINGS



A Database for Assessing Indoor Airflow, Air Quality and Draught Risk

Q Chen, A Moser, P Suter

Introduces a simplified method that allows design engineers, consulting engineers and HVAC students to assess indoor airflow patterns, indoor air quality and draught risk without doing a costly experiment or running an expensive and complicated flow field simulation code. A pre-calculated airflow database has been set up for this purpose. **£32.00**

Room Air and Contaminant Flow Evaluation of Computational Methods

A D Lemaire (ed.)

Topics include an overview of air flow simulation and measurement techniques, and an evaluation of the performance of models in the prediction of flow parameters. **£20.00**

ENVIRONMENTAL PERFORMANCE OF BUILDINGS

A Technical Synthesis Report

L-G Mansson

Summarises the research from this project to provide an introduction to the assessment of the

capacity and deviations of different advanced thermal calculation programs. **£20.00**

Appropriate Use of Programs (2 Volumes)

The project aimed to document, test and develop a range of building performance assessment methods so that guidance could be given on their selection, application and method of use. The second volume expands on the overview given in the first. **£65.00**



Building Design Support Environments

Christof Hertkorn (ed.)

Building design support environments help architects, engineers, and other experts to design buildings that consume less energy, operate more efficiently, and are more comfortable. In addition, the design process is quicker, more alternatives can be generated and compared, and data produced within a design can be transferred more easily to other areas such as construction, and building automation. This report gives an overview of systems and projects dealing with Building Design Support Environments. **£25.00**

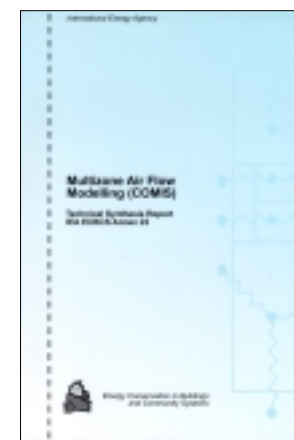
Energy Analysis Tests for Commercial Buildings

T Haapala, T Kalema, S Kataja (Eds.)

A simple module was created for verification of energy analysis programs in the calculation of a commercial building, consisting of two similar

office rooms and a corridor situated in the middle of a large building. Six separate test cases were created using this module and the results presented using weather data for Denver, USA. Six energy analysis programs, BLAST, ESP, SERIES, S3PAS, TASE and TRNSYS were used in the study. Output parameters predicted were annual heating and cooling energies, hourly integrated peak heating and cooling loads, extremes of room air temperatures and heat losses for windows, exterior walls and ventilation. **£15.00**

MULTIZONE AIR FLOW MODELLING (COMIS)



A Technical Synthesis Report

by Peter Warren

Aims to provide an introduction to the multizone airflow model, COMIS, and an outline of its potential for application to the design of building systems. **£20.00**

ENERGY EFFICIENT COMMUNITIES

Energy Efficient Communities

R Jank, J Johnsson, S Rath-Nagel

The optimisation of energy supply and minimising of environmental impact has become a major community responsibility since the oil crises. A

number of countries have developed new methods for the design of energy efficient communities, so-called 'local energy planning'. The project reviewed LEP strategies and aimed to develop a guide for the individual planner or urban manager for use in real applications. **£20.00**

REAL TIME HEVAC SIMULATION

A Technical Synthesis Report

by M W Liddament

A summary of the project to develop real time procedures to monitor and optimise HVAC performance. The report describes the evaluation of modelling performance, the compilation of a database of important problems and faults in existing systems, and the demonstration of the implementation of building optimisation, fault detection and diagnosis (BOFD). **£20.00**

Building Optimisation and Fault Diagnosis CD

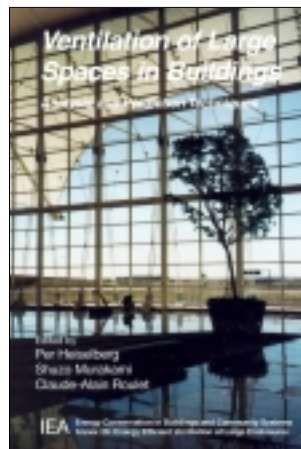
This CD contains two final reports from the project: the Source Book and Technical Papers. The Source Book describes the basic concepts and the fault detection and diagnosis approaches applied in the project. The Technical Papers report describes the technical and scientific work carried out under the headings of system applications, method applications and tools. **£88.00**

ENERGY EFFICIENT VENTILATION OF LARGE ENCLOSURES

A Technical Synthesis Report

A Moser, et al

Provides an introduction to the research from this project which developed methods to minimise energy consumption of large enclosures in the provision of good indoor air quality and comfort, the safe removal of airborne contaminants, and the high quality distribution of fresh air. Analysis and prediction techniques, measurement techniques, case studies and a review of lessons learned are all covered. **£20.00**



Analysis and Prediction Techniques

P Heiselberg, S Murakami, C-A Roulet (editors)

The chapter on models covers flow element models, engineering models, field models, scale model experiments, ventilation

efficiency, and energy implications. The measurement techniques chapter covers a review of existing techniques and an analysis of techniques applied to large enclosures. Finally, the last chapter gives a demonstration of tools used on seven case study buildings. **£40.00**

Case Study Report

D Mueller and N Vogl (ed.)

Contains brief descriptions of most of the buildings examined by the research project. Its goal is to provide the reader with an overview of the various building types including information about the buildings' performance. There are case studies of twenty-four buildings, divided by type

including atria, industrial buildings, sports buildings, auditoria and others. **£20.00**

EVALUATION AND DEMONSTRATION OF DOMESTIC VENTILATION SYSTEMS

Simplified Tools CD

The CD contains the handbook and background reports from this research project, together with the computer software tool VENSET. **£60.00**

A Technical Synthesis Report

by Peter Concannon

This summary report will discuss the simplified tools developed during the research project.

Forthcoming

State of the Art

L-G Mansson (ed.)

Ventilation in increasingly energy efficient dwellings can represent up to 10% of the building's energy use. The project aimed to develop methods for evaluating domestic ventilation systems, to validate these methods with data obtained from measurements, and to demonstrate and evaluate domestic ventilation systems for different climates, building types and use. **£25.00**

DAYLIGHT IN BUILDINGS

Daylighting Design Tools

Jan de Boer and Hans Erhorn (eds.)

Reviews a cross-section of various types of powerful as well as simple daylighting design tools and their different applications. Also describes

two new design tools developed by the researchers LESO-DIAL and ADELINE. **£10.00**



Survey of Simple Design Tools

Jan de Boer, Hans Erhorn
The tools reviewed for this report include formulae, tables, nomograms, diagrams, protractors, computer tools, typology and scale models. **£10.00**

Validation of Daylighting Computer Programs

M Fontoynt M, P Laforgue, R Mitanchey, M Aizlewood, J Butt, et al
The study compared simulation exercises and measurement data from scale models in artificial skies, using the daylighting software tools Radiance, Superlite, Genelux, Adeline and LESO-Dial. **£10.00**

BRINGING SIMULATION TO APPLICATION

Technical Synthesis Report
Forthcoming

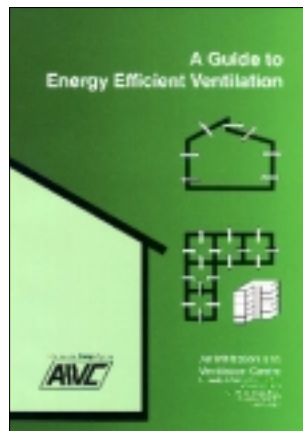
Final Report on CD
edited by Philippe André and Jean Lebrun
Chapters cover design process analysis, model qualification, information management, and data exchange. **£25.00**

ADVANCED LOCAL ENERGY PLANNING

A Guidebook for Advanced Local Energy Planning

edited by Reinhard Jank
Explains the 'ALEP philosophy', reports the results of case studies in which it was applied using Markal as a comprehensive energy model, and discusses the potential benefits of energy system models in the context of strategic local energy planning, compared to conventional planning approaches. **£50.00**

AIR INFILTRATION AND VENTILATION



A Guide to Energy Efficient Ventilation

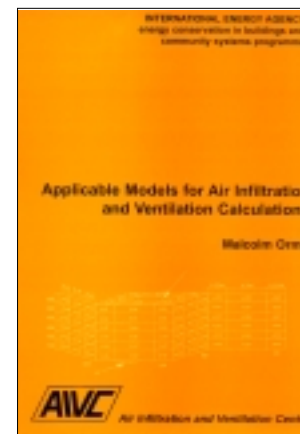
Martin W Liddament
A comprehensive review of ventilation in relation to energy efficiency and good indoor air quality. Emphasises the decision making strategies involved in selecting and planning for ventilation

and aims to equip the reader to make fundamental judgements about how much ventilation to provide, and how to design for low cost and energy consumption. **£22.50**

Ventilation Duct Cleaning: An Annotated Bibliography

Mark J Limb
Gives an overview of current developments in

duct cleaning technology and methods. Reviews sources and types of contamination including dust, oil residue, fungal growth and chemical emissions. Discusses protocols and maintenance regimes, ductwork design faults, and case studies, and lists 100 bibliographical references. **£22.50**



Applicable Models for Air Infiltration and Ventilation Calculations

Malcolm S Orme
In recent years, the 'usability' of ventilation and air infiltration models (both public domain and commercially available) has

increased greatly. This report identifies possible areas of application for 15 such models. (These are mainly 'network' models.) In addition, it discusses the input data that must be provided in order to use them. Describes the capabilities of the models provides full contact details on how to obtain them. **£22.50**

COMPUTER-AIDED EVALUATION OF HVAC SYSTEM PERFORMANCE

Demonstrating Automated Fault Detection and Diagnosis Methods in Real Buildings: Proceedings of VTT Symposium: 217

Arthur Dexter and Jouko Pakanen (eds.)
A CD publication. The project aimed to develop HVAC fault detection and diagnosis tools, which

are close to commercial products. The approach was to design a number of different computer-based demonstration systems that could be interfaced to HVAC processes in real buildings. By monitoring the operation of these demonstration systems, researchers were able to test a variety of fault detection and diagnosis methods and techniques in a real environment, find possible shortcomings and obtain new ideas for further development. Over fifty industrial partners participated in the thirty demonstrations that were completed. The report describes each demonstration system, identifies key issues associated with successful practical application and examines the potential for commercial exploitation. **CD format only £65.00**

CONTROL STRATEGIES FOR HYBRID VENTILATION

Hybrid Ventilation: State of the Art Report edited by Angelo Delsante and Tor Arvid Vik
A CD publication. Summarises the initial working phase of the project, including: an introduction listing the expectations for hybrid ventilation in the participating countries; a survey of 22 existing buildings; barriers to and opportunities for hybrid ventilation in building codes and standards; and control strategies and analysis tools. **£10.00**

HIGH PERFORMANCE THERMAL INSULATION (HIPTI)

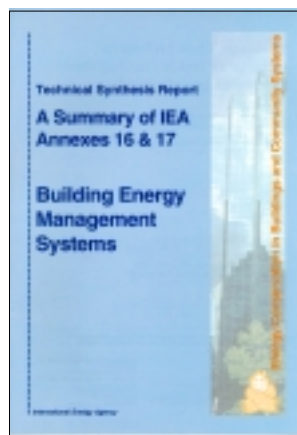
HiPTI - Vacuum Insulated Products (VIP) Proceedings of the International

Conference and Workshop 2001

Edited by Mark Zimmermann,
Hans Bertschinger

Presents the papers and workshop presentations from this conference, held as an introductory examination of topics for the new project on high performance insulation. Available on CD. **£10.00**

BEMS - USER INTERFACES AND SYSTEM INTEGRATION



Building Energy Management Systems: A Technical Synthesis Report

L G Mansson and D McIntyre

An introduction to the benefits of BEMS in buildings, aimed at the non-expert. Summarises the research carried out

for these two projects, which examined the functions of a number of existing computerised control, regulating and monitoring systems and their operation in various climates, developed algorithms for use in these systems, and demonstrated the options for better control and regulation by simulation. **£20.00**

A Guide to Sensors for BEMS

N Nakahara
£25.00

User Experience in BEMS Applications

T Brendel, A Schneider
£25.00

Specifications and Standards for BEMS

A J H Teekaram, R W Grey
£25.00

Case Studies of BEMS Installations

H Nicolaas
£25.00

Cost Benefit Assessment Methods for BEMS

J Hyvarinen
£25.00

BEMS - EVALUATION AND EMULATION TECHNIQUES

Development of Emulation Methods

S Karki (ed.)

An emulator for a building energy management system (BEMS) application consists of a simulated building and its (simulated) mechanical system connected to a real BEMS. The report describes the basic structure of the six emulators developed in the project and the validation tests performed, and discusses various applications emulators in general and for BEMS testing in particular. It also presents guidelines and an example of the use of emulation techniques for BEMS quality assessment. **£55.00**

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