AIR INFORMATION REVIEW

Vol 24, No. 3, June 2003 A quarterly newsletter from the IEA Air Infiltration and Ventilation Centre

The new AIVC in its first period June 2001 - May 2004

An evaluation of the situation

W. de Gids - AIVC Chairman

The programme of AIVC proposed to the Executive Committee of the ECBCS was challenging. As you may know, around 2000 the AIVC was in a critical position. A number of countries were unsure whether to continue their participation in AIVC, and the funding structure was criticized by bigger countries such as USA and Germany. New solutions need to be found for the work of AIVC to continue. It was Peter Wouters, the present Operating Agent, who at the Scheveningen Steering Group Meeting in September 2000, came up with a new idea to for this.

Mission

Reconstruction of the existing IEA Annex 5 to ensure that the proposed Annex remains a partnership and a forum of participating ECBCS members with the overall interest of bringing international applicable ventilation related research and developments to practice.

Objectives

The overall grouping of activities was divided into the following key functions:

- to act as a technical forum for all relevant international and national ventilation and related activities
- to undertake technical evaluations and analyses so as to synthesise leading edge research information into industry focussed products
- to provide synthesised information to the research community, policymakers, industry with emphasis on the end users and practitioners

Programme

- in the proposed operating period we anticipate addressing the following topics:
- appropriate ventilation, such as passive cooling and hybrid systems, to address the issue of climate change and sustainable development
- impact of ventilation on occupant performance such as productivity and learning skills in the non industrial built environment
- ventilation in the urban environment and strategies for a cleaner city of tomorrow
- the impact of ventilation and infiltration in the energy performance of buildings with respect to regulations
- guidance on product specifications for innovative development related to emerging codes, regulations and standards
- the role of the external envelop on rational energy use and moisture transmission through ventilation and infiltration
- simplified measurement techniques for commissioning and maintenance during system life time

Organization

The organization of the Annex 5 AIVC has changed too. The technical programme is separated from the dissemination part.

AIR
AIR INFORMATION REVIEW

The newsletter of the AIVC, the Air Infiltration and Ventilation Centre. This newsletter reports on air infiltration and ventilation related aspects of buildings, paying particular attention to energy issues. An important role of the AIVC and of this newsletter and CD is to encourage and increase information exchange among ventilation researchers and practitioners worldwide.

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Air Infiltration and Ventilation Centre
Operating Agent and Management
INIVE EEIG, Boulevard Poincaré 79
BE-1060 Brussels, Belgium
Tel: +32 2 655 77 11
Fax: +32 2 653 07 29
inive@bbri.be, http://www.inive.org

Preparation:
Christophe Delmotte & Peter Wouters

Editing: Erika Malu

Contributions to AIR: Suggestions for contributions are welcomed.

Subscriptions: (See also the subscription form on page 15 or on the CD)

The subscription is for 4 issues of the newsletter, with accompanying CD, per year (starting in September) Issues are published in September, December, March and June.

1) AIVC Member Countries:
Belgium, France, Greece, Norway, Netherlands, USA
200 EUR/year (renewals at 100 EUR)

2) Non-AIVC Member Countries
400 EUR/year (renewals at 200 EUR)

3) A free version of AIR without any links is available at *www.aivc.org*

INIVE members distribute AIR & AIVC-CD for preferential rates (even free of charge) in their countries (Belgium, France, Germany, Greece, Norway, Switzerland).
Contact INIVE for information (see page 16).

The overall management and responsibility structure is as follows:

The following countries participate at the AIVC:
- Belgium
- France
- Greece
- Netherlands
- Norway
- USA

Other countries such as the Czech Republic, Canada and the UK are considering participation in AIVC.

Realization

The following publications have been published in the new period:
- TN 52 Ventilation and Acoustics
- TN 53 Occupant Impact on Ventilation
- TN 54 Residential Passive Ventilation
- TN 55 Review of Ventilation Criteria
- TN 56 Ductwork
- TN 57 Residential ventilation
- BIB 12 Airflow measurement techniques
- GU 05 Modelling data guide

In preparation are the Standards database and several new publications called VIP. Ventilation Information papers:
- hybrid ventilation
- ductwork airtightness
- dwelling airtightness
- natural ventilation in urban areas
- energy performance regulations
- heat recovery
- displacement ventilation

Furthermore the Ventilation Guide will be updated and a state of the art report will be produced.

Not all objectives have been realized. But I think an impressive list of products is shown, while the newsletter AIR, AIRBASE and the AIVC conferences are ongoing activities of the Annex.

I hope this overview will give members the feeling that the work of AIVC is still valuable. I hope for potential new members it gives enough persuasion and stimulus to join either AIVC or INIVE.

GUIDE TO THE NEWSLETTER

The Air Information Review is available in electronic format (PDF file) on the AIVC-CD. This electronic version is provided with hyperlinks to other documents located on the CD and to external web sites or e-mail addresses.

In the document, links are represented by small red icons or by red text.
To follow a link: position the pointer over the linked area on the page until the pointer changes to a hand with a pointing finger (the hand has a plus sign in it if the links point to the Web). Then click the link.

Content of the AIVC-CD
The AIVC-CD contains various AIVC products, such as the Air Information Review newsletter, Technical Notes, “Airbase” (the AIVC's bibliographical database) and recent conference proceedings. It also contains a lot of third party publications.

The content of the CD is summarised in a document called “What’s on the AIVC-CD?”. This document is also available on the CD and is provided with hyperlinks.

In order to have an overview of the content of all the AIVC-CD’s, a compilation of their tables of content is now also available on the CD.

How to find information on the AIVC-CD
Once you have introduced the AIVC-CD in the CD-Rom driver of your computer, the index.html file should open automatically. (If this is not the case, you can find the file on the main root of the AIVC-CD and open it yourself). This file is provided with hyperlinks to other documents located on the CD.

To find information in a PDF document, you can use the Find command (Edit > Find) to find a complete word or part of a word in the current PDF document.

You can also use the Search command (Edit > Search > Query) to search for a word or combination of words through all the PDF files located on the AIVC-CD.

WEBSITES

Airtightness Testing of Air Barrier Connection Techniques

http://www.-

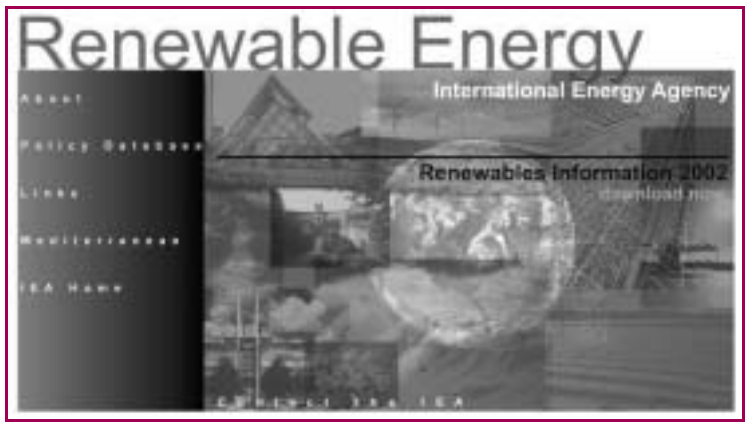
Results of a study of the behaviour of several air barrier connection techniques are available at the Canada Mortgage and Housing Corporation website.

New IEA websites on climate change and renewable energy

The International Energy Agency has recently launched two new interactive websites:

- Dealing with Climate Change", offers a searchable access to information on energy-related policies and measures taken or planned in IEA Member countries to reduce greenhouse gas emissions. It contains over 800 records collected over four years (1999 - 2002).
  http://www.-

- Renewable Energy Policies and Measures in IEA Countries" offers a detailed reference to more than 120 legislative acts that support the development and market uptake of renewable energy sources.
  http://library.-



NEWS FROM PRACTICE

REHVA - Federation of European heating and air-conditioning associations

O. Seppänen -
Helsinki University of Technology
http://www.-

REHVA is a 40 years old organisation connecting European professionals in the area of building engineering services (heating, ventilating and air-conditioning). REHVA represents more than 100 000 engineers from 27 European countries. REHVA´s main activity is to develop and disseminate economical, energy efficient and healthy technology for mechanical services of buildings. REHVA is working in several areas in serving its members.

One of these areas deals with the REHVS Guidelines under its technical committee. The objectives of this work are:

- Indentify new areas for technical development
- Initiate work for technical guidelines in the area of building services,
- Establish working groups for such guidelines
- Develop distribution of Rehva Guidelines to members and other professionals

Several Task Forces are currently working towards Rehva guidelines. Some of those are listed below with their chairpersons and working status.

Task Force 1-Displacement ventilation
Håkon Skistad,
hakon.skistad@enegy.sintef.no
Norwegian Technical Research Institute (SINTEF)
The results are published as a guidebook and being translated into national languages (Slovenia and Germany, finished; French, Finnish and Russian in progress)

Task Force 2-Clean ventilation components and systems
Dr Pertti Pasanen,
pertti.pasanen@uku.fi,
University of Kuopio, Finland
Draft is available for review in 2003

Task Force 3-Low temperature heating and high temperature cooling
Dusan Petras, petras@svf.stuba.sk,
Technical University of Slovakia

Task Force 4-Indoor Climate and Energy of School Buildings
Ben Bronsema, bronconsult@planet.nl
The Netherlands

Task Force 5 -Efficient ventilation
Elisbeth Mundt, mundt@bim.kth.se,
Royal Institute of Technology,
Stockholm, Sweden
Draft is available - comments and practical examples are invited.
Work will be finished by next general assembly in France 2003.

Task Force 6-Beam cooling
Maija Virta (maija.virta@haltongroup.co) Halton Group
A draft will be available in the general assembly in France 2003.

Task Force 7-Effect of indoor environment on productivity
Olli Seppänen (olli.seppanen@hut.fi),
Helsinki University of Technology
The objective of this task force is to develop a guideline for engineering evaluation of the cost effectiveness of the investments in indoor environment.

Task Force 8-Control of indoor air quality in museums
Livio de Santoli
(livio.desantoli@uniroma1.it),
University of Rome, Italy
Task Force works in co-operation with ISIAQ.

Task Force 9-State-of the art report of the control of Legionella
Livio de Santoli,
livio.desantoli@uniroma1.it
University of Rome, Italy

Task Force 10-Improving the Reliability and Value of Building Services
Derek Clements-Croome,
d.j.clements-croome@reading.ac.uk,
University of Reading, UK.

Task Force 11-Energy performance of buildings
Klaus Sommer,
klausesommer@aol.com
The objective of this task force is to follow up and assist in the technical implementation of European Directive of Energy Efficiency of Buildings.

Task Force 12-Control of exposure to tobacco smoke in restaurants
Ben Bronsema (Region 1),
bronconsult@planet.nl,
with co-operation with Cost G3.

Task force 13-Commissioning of HVAC-systems-phase 2
Jan Eisenburger,
jan.eisenburger@tip.nl
The Netherlands

Follow up of the REHVA CD-ROM on commissioning 2001

An important activity of Rehva is the Clima 2000 conference series every fourth year. The last conference took place in Naples, Italy, 2001, where more than 500 technical and scientific papers were presented, and more than 10 workshops organised. The next conference will be in Lausanne Switzerland in October 7-11, 2005.

One of REHVA´s tasks is to disseminate technical information in Europe. An important part of this is the development of definitions and vocabulary of technical terms. A dictionary with more than 4000 terms in ten languages has been published. It is more than ten years old and will be modernized in the near future. This work will be done in close co-operation with CEN using as much as possible the same terms as CEN standards.

REHVA has two important publications for its members. The older one is a technical REHVA journal which is published quarterly. It informs the members about the activities of the organisation, and also published technical articles in the interest area of members.

REHVA scientific journal is published currently in co-copertation with publishing house Elsevier and journal “Energy and Buildings”.

The editor in chief of the Rehva science is Prof. Enno Abel from Sweden (enno.abel@cit.chalmers.se). The purpose of this journal is to publish scientific papers in the area of building services engineering with special focus on young scientists and PhD students.

REHVA´s general assembly, where the representatives of all member countries meet with official and technical programs, is held once a year. The next general assembly will take place in La-Rochelle, France, in October 2-4. 2003.

REHVA´s secretariat is located in Brussels.

Lawrence Berkeley National Laboratory's Environmental Energy Technologies Division

Energy is vital to the health and security of the economy and the nation. Cost-effective, energy technologies can strengthen the economy, mitigate the effects of energy production on the environment, and protect human health. Development of such technologies requires a sustained, vigorous program of research on technology and market dynamics.

The mission of Berkeley Lab's Environmental Energy Technologies Division (EETD) is to perform research and development leading to better energy technologies and market mechanisms that reduce adverse energy-related environmental impacts. Its work increases the efficiency of energy use, reduces its environmental effects, provides the nation with economic benefits, and helps developing nations achieve similar goals through technical advice.

EETD carries out its work through the support of the U.S. Department of Energy (the Division's primary sponsor), other federal entities, state governments, and the private sector. Its staff of 300 represents a diverse cross-section of fields and skills, ranging from architecture, physics, and mechanical engineering to economics and public policy.

Many staff members have joint appointments at the University of California, Berkeley, and the Division draws on students and recent graduates from UC and other academic institutions for research assistants and post-doctoral appointments.

A large number of articles about the Lab's energy and environmental research can be found at the following link: *http://www.-*

The Division's web site is *http://eetd.-* By hitting the link "Bookstore" on the left, readers can download a wide variety of newsletters, reports and documents.

On the AIVC-CD:
- Brochure of the Environmental Energy Technologies Division
- EETD News – Volume 3 n°4
- EETD News – Volume 4 n°1

INFO FROM PROJECTS

21-CR: an American initiative for HVAC/R precompetitive industrial research

http://www.-

The Twenty-First Century Research (21-CR) initiative is a U.S. private-public sector research collaboration of the heating, ventilation, air-conditioning and refrigeration (HVAC/R) industry, which was launched in 1999 with the mission to identify, prioritize, and undertake precompetitive research that focuses on decreasing energy consumption, increasing indoor environmental quality, and safeguarding the environment.

It focuses on resolving technological hurdles and difficulties that prevent or impede manufacturers from introducing next generation systems and components. Once these technical challenges have been addressed, the various stakeholders are positioned to apply the 21-CR research results and to produce the products/services that satisfy market needs within the HVAC&R sector.

Areas of interest are related to all aspects of the HVAC&R industry :
- alternative equipment
- high efficiency equipment
- smart building system integration
- improved indoor environmental quality
- environmentally-friendly working fluids

The Air-Conditioning and Refrigeration Technology Institute (ARTI), a not-for-profit research entity, is the administrator of the program. The 21-CR effort is guided by a committee structure comprising experts from industry, related trade and professional organizations, national laboratories, governmental agencies, universities, utilities, and other interested stakeholders. ARTI disseminates research results via seminars and conferences, and through a website.

The research projects of 21-CR concern not only air conditioning and refrigeration, refrigerants, heat exchangers, … but also ventilation and indoor air quality.

Final reports of completed research projects are available for free download at the 21-CR website. Some of them are of particular interest for ventilation:
- Defining the effectiveness of UV lamps installed in circulating air ductwork ,
- Energy savings potential of flexible and adaptive HVAC distribution systems for office buildings,
- State-of-the-art review, whole buildings and building envelope simulation and design tools

Ventilation related on-going research projects include:
- Simulating the performance of natural and hybrid ventilation systems in U.S. office buildings
- Investigation of the causes of "black soot phenomena"
- Development of a residential indoor air quality evaluation program
- System optimization of residential ventilation, space conditioning, and thermal distribution
- The role of filtration in maintaining clean heat exchange coils

Among other on-going projects are topics such as:
- Methods for automated and continuous commissioning of building systems
- Building subsystems integration performance benchmarking
- Health, energy, and productivity in schools

Environmental Design of Urban Buildings

The European Commission's SAVE 13 program serves to promote energy efficiency in building design and construction. It is a so-called clustering project. The project comprises 2 activities:

- The development of a Distance-learning module for architects and engineers interested in integrated design in the urban environment.
- A pilot action that involves the production and promotion of modules for the initial training for building professionals and craftsmen/ technicians: TUNE UP!

A handbook, CD-ROM and web site are being developed to enable professionals to advance their knowledge in environmental design using distance-learning tools. These tools can be used when studying alone or through Universities. The material has been designed as an academic module that can satisfy postgraduate certificate requirements.

The handbook is entitled "Environmental Design of Urban Buildings: an integrated approach". Written for those interested in the design of buildings, including building professionals, building designers and engineers, this book covers the relationship of the design to the urban setting, how to overcome related challenges, use of new materials and techniques and integration with new philosophies.

Chapter 1: Environmental urban design
Chapter 2: Architectural design, passive environmental and building engineering systems
Chapter 3: Environmental issues of building design
Chapter 4: Sustainable design, construction and operation
Chapter 5: Intelligent controls and advanced building energy management systems
Chapter 6: Urban building climatology
Chapter 7: Heat and mass transfer phenomena in urban buildings
Chapter 8: Applied lighting technology
Chapter 9: Case studies
Chapter 10: Guidelines to integrate energy conservation
Chapter 11: Indoor air quality
Chapter 12: Applied energy and resources management in the urban environment
Chapter 13: Economic methodologies
Chapter 14: Integrated building design

Full details on the contents of the handbook are given in the pdf-files on the AIVC-CD:

- SAVE 13 Newsletter 1
- SAVE 13 Final Newsletter

Commissioning of HVAC systems for improved energy performance

J-Ch. Visier - CSTB
http://www.-

Annex 40 is a research project which develops, validates and documents tools for commissioning buildings and building services. The work is focused on HVAC systems and their associated control systems. Ventilation which is of particular interest for AIR readers is clearly addressed by the Annex.
The tools developed by the annex include:

- guidelines on commissioning procedures;
- recommendations for improving commissioning processes; and
- prototype software that could be implemented in stand-alone tools and/ or embedded in building energy management systems (BEMS).

This work started in 2001 and draft results are available for comment on the annex web site.
http://www.-

The 5th annex meeting was held in Kyoto in April 2003. At this occasion, a one day symposium was organized by IBEC (Institute of Building Environment and Energy Conservation), SHASE (Soc. of Heating, Air-conditioning and Sanitary Engineers of Japan) and ILBH (Institute of International Harmonization for Building and Housing) to enable interaction between the annex participants and Japanese professionals. 133 people attended this symposium.
Papers prepared for this symposium provide a clear view of the annex progress and of international developments regarding commissioning. They are available on the AIVC-CD.

STANDARDS AND REGULATIONS

CEN/STAR Workshop on HVAC Appliances: 50 European experts define prenormative research needs

CEN/STAR is an action group of CEN (European Committee for Standardization) dealing with Standardization and Research. CEN/STAR establishes needs for co-normative and pre-normative research in support to CEN standardization. CEN/STAR interfaces with the European Commission and bodies funding research in Europe in order to ensure that research is used for the benefit of standardization.

A CEN/STAR Trend Analysis Workshop took place on 23-24 January 2003 in CETIAT (France) about Heating, Ventilation and Air Conditioning (HVAC) appliances. Its aim was to provide an overview of the trends of research and future standardization for HVAC appliances and to define the needs for pre-normative or co-normative research and interaction with standardization works.

This Workshop was organised by CETIAT (French Technical Centre for HVAC Appliances), in co-operation with CEN/STAR, DGC (Danish Gas Technology Centre) for heating appliances, VTT (Technical Research Centre of Finland) for ventilation appliances and SP (Swedish National Testing and Research Institute) for air conditioning appliances. It brought together 50 experts from 13 European countries.

92 research topics to be managed in support to standardization were identified. They relate to such important issues as energy, environment, safety, noise and fitness for use of HVAC appliances.

More than 50 topics concern ventilation appliances and systems. They include, for example:

- Performance of air filters in domestic ventilation heat recovery units
- Test method for air terminal devices in non isothermal conditions
- Relationship between indoor air quality and ventilation efficiency
- A reference test method for air cleaners

- Development and validation of assessment tools for electrical energy consumption of air handling units alone and installed in a system / a building
- In duct noise measurement method for rectangular air ducts
- Setting up a series of HVAC appliances to be used in round robin tests
- …

Workshop results have been distributed to the concerned Technical Committees of CEN in order them to validate the identified research needs. These results may also be useful to manufacturers to anticipate the development or changes of standards. Finally, they could help to define research programmes and/or their fundings.

The final report of the Workshop, with the list of the 92 research topics, is available on the AIVC CD.

BOOKSHOP

Ventilation Information Paper n°1 – Airtightness of ventilation ducts

Ventilation Information Papers (VIP) are a new series of AIVC publications. They are quite short (6 to 8 pages) and are intended for giving a basic knowledge of some aspects related to the air infiltration and/or the ventilation.
The first VIP deals with the airtightness of ventilation ducts: What importance can that have, how does one measure leakages, what airtightness criteria can one adopt and finally, what are the possibilities of improvement … All these are questions to which the document aims to bring an answer or solution. This first VIP is available on the AIVC CD.

The next VIP will deal with the following topics:

- The impact of the urban context on ventilation
- Hybrid ventilation systems
- Displacement ventilation
- Air pollution in buildings

Fire risk assessment of catering extract ventilation

http://www.-

In the UK, the pressure to improve fire prevention in catering establishments has for some years come largely from the insurance industry. This growing concern made apparent that kitchen operators needed to better manage their extract ventilation systems.

The principal fire risk in kitchen extract ventilation is created by the excessive build-up of cooking oil deposits. A first layer of grease will bond to metal surfaces, and then subsequent layers of black carbon will build-up created by ash and grease from the cooking process.

It is also important to remember that at temperatures above 200 degrees C flammable vapours are given off from cooking oils and that spontaneous ignition can occur at temperatures between 310 and 360 degrees, which are not so much higher. It is also worth noting that the flashpoint of cooking oil is reduced by progressive oxidation as a result of repeated use. Deposits of some mixtures, such as chicken fat and vegetable oil are particularly easy to ignite.

All cooking equipment forms a potential source of ignition. Other combustible materials may be sited adjacent to exhaust. Finally, plenty of air will be available for combustion.

BSRIA with research funding support from the Association of British Insurers (ABI) has recently compiled a document presenting a method for fire risk assessment of catering extract ventilation.

This document has been written so that it should be easily understood by the majority of kitchen operators and may, in time, evolve into an insurance industry standard for such premises. The risk assessment method presented is intended to be conducted in five separate stages: identifying ignition risks; the assessment of risks; evaluation of the risks; keep records; and finally review and revise the assessment after a period of time.
A full copy of "Fire Risk Assessment, Catering Extract Ventilation" is available on the AIVC CD.

Children health and environment

http://www.-

The U.S. Environmental Protection Agency (EPA) published in February 2003 the second edition of America's Children and the Environment: Measures of Contaminants, Body Burdens, and Illnesses. The report gives comprehensive information about the influence of environment (including air pollutants) on children health in the U.S.
Some interesting points are for example:

- the percentage of homes with children under 7 in which someone smokes decreased from 29% in 1994 to 19% in 1999; the cotinine levels measured in children blood (cotinine is a marker of exposure to environmental tobacco smoke) were 56 % lower in 1999-2000 than they were in 1988-91.
- the percentage of children with asthma doubled between 1980 and 1995 (from 3.6% to 7.5%), while 8.7% of children had asthma in 2001. The report reminds us that research on environmental factors that exacerbate or may cause asthma has identified exposures to dust mites, cockroaches, tobacco smoke, nitrogen dioxide, pesticides, VOCs, ozone and particulate matters.

Building-integrated ventilation – New Norwegian guide

Dr. Peter G. Schild – NBI
http://www.-

A 64-page guide on building-integrated ventilation solutions has just been published in Norway by the same team that participated in the international collaborative project '*HYBVENT : Hybrid Ventilation in New and Retrofitted Office Buildings*' (IEA ECBCS Annex 35). This latest publication is the culmination of four years of evaluation and experience from modern buildings in Norway, mainly schools, with different forms of building-integrated ventilation systems.

Building-integrated ventilation involves physically integrating the ventilation system with the building's form and structure in a way that gives synergetic effects as a result of intelligent use of the building's inherent architectural attributes - for example, exploitation of the structure's thermal mass and form for passive cooling, and ventilation air flow paths with low pressure loss and low noise generation. This is nothing new - in past generations natural / passive solutions were necessarily used for climatization and lighting in buildings.

Examples include building-integrated stacks for natural ventilation, large room volumes, window airing, heavyweight materials, daylighting with appropriate shading for summer. Many of these techniques have again attracted interest, in an attempt to reduce energy use for climatization and lighting in a modern setting. Assuming proper design and implementation, such solutions can also result in a degree of simplification, increased longevity, and lower maintenance intensity for the building services, but it should be done without compromising the long-term flexibility/adaptability of use of the building space.

Modern building-integrated ventilation has often been implemented with hybrid ventilation, which lies at the confluence of the trends in technological evolution of both natural ventilation and conventional mechanical ventilation.

The evolution in mechanical ventilation has moved towards lower pressure loss, automation for demand-control, and passive alternatives to using chillers. Similarly, natural ventilation has become more automated and controlled, with fan-assistance, and demand-controlled vents.

Norway has over 25 new buildings with modern building-integrated ventilation, mainly schools. More are being built. The guide gives tentative conclusions about alternative system designs. Overall, the indoor environment appears to be very satisfactory. Preliminary analysis of questionnaire surveys suggests that use of filters can be a negative IAQ factor, though this needs further confirmation. Some of the ventilation systems have had noise problems, but this can be prevented with judicious design and components. Many of the systems have had running-in problems related to controls and energy use, and require careful following-up, but this may be symptomatic of all buildings with tailored/programmed automation.

Available statistics from these buildings shows a very wide spread in energy consumption per m². We have moved away from extensive use of the term 'hybrid ventilation' to characterize these buildings, since exploitation of natural driving forces is just one of many features that combine to make these ventilation systems work. The potential for very low noise levels, apparent ease of maintenance, good IAQ, possibility for user/demand-control, and passive cooling due to exposure of the building's thermal mass and integration of the air flow paths in the building structure, are all qualities that should have a wide-ranging application and interest.

The guide is in Norwegian.

Natural ventilation for dwellings – A practical guide

Nélis L., Baltus C., Guillemeau J.-M., Wagelmans P.
La ventilation naturelle des habitations – Guide pratique pour les menuisiers. Bruxelles, DGTRE, 2002, 60 pp.

This new publication provides practical guidance to joiners for the installation of natural ventilation systems in dwellings. Firstly it explains in a few words the reasons for ventilating. Then it gives information about the requirements of the Belgian standard NBN D 50-001 "Ventilation systems for housings". The third part of the document deals with the material and its installation.

The guide is intended to support the vocational training of young people. It is therefore written in a simple style and well illustrated.
The guide is written in French and is available on the AIVC-CD.

Related websites:
- Fonds de Formation professionnelle de la Construction (FFC) - *http://www.laconstruction.be*
- Direction Générale des Technologies, de la Recherche et de l'Energie (DGTRE) - *http://mrw.wallonie.be/dgtre/*

MEETINGS AND EVENTS

Forthcoming conferences

Details for the forthcoming conferences are available on the CD.

First Ventilation Forum in Warsaw

W. de Gids - TNO
P. Op 'tVeld - Cauberg-Huygen
Poland
March 13/14, 2003

On invitation Peter Op 'tVeld coordinator of the EU Reshyvent project and myself on behalf of the AIVC, visited the first Forum on Ventilation organised by the Polish Association for Ventilation (Stowarzyszenia Polska Wentylacja). Professor Tomasz Trusewisz the director of the association, invited the AIVC to present themselves for the ventilation community in Poland. The Association is just one year old. Nevertheless more than 800 people were attending the Forum. There were plenary sessions and parallel session on topics such as standards and regulations, industrial ventilation, domestic ventilation, new developments etc ...

Peter Op 'tVeld and I were the only foreigners. We were handled as VIP's. A personal interpreter was our guide.
Four papers were presented by us. The first two papers were about developments in ventilation systems:
- Developments in ventilation systems in the Netherlands.
- The EU project Reshyvent
- Innovative systems and barriers in European standards and Regulations
- The AIVC as international coordination body in ventilation research

The audience was very interested in all papers. The Association, in which industry is widely represented, is looking for possibilities to join either AIVC or INIVE. A frequent visitor of the AIVC conferences, Jerzy Sowa, was supporting the AIVC very much. Also people from industry were interested. The Ventilation Forum lasted two days. The second day we visited the exhibition on ventilation.

What was already clear to us was also demonstrated in the exhibition:
- The level of knowledge on ventilation is quite high
- The products on ventilation are almost the same as in our western countries

Mr. Willem de Gids

Remarkable was for instance that AERECO, the innovative ventilation industry from France, already had representatives in twelve Polish cities.
Poland is very interested in international cooperation and is looking forward to participate in institutions like the AIVC. They asked us to think about a conference in Poland organized by either the AIVC or Reshyvent.

A good experience which should be explored by AIVC and INIVE.

Mr. Peter Op 'tVeld

Workshop Matlab/Simulink in building and HVAC simulation

23 - 24 October 2003

The use of Matlab, a tool for mathematical programming, is actually increasing in a large number of fields.

Together with its dynamic simulation toolbox Simulink, originally developed for control and automation applications, it has become a powerful tool that is suitable for a large number of applications. Many other Matlab toolboxes exist that can be combined, as for example optimisation, control, CFD or even virtual reality. The range of possible applications of the tool is very large and still increases since the tool is used in many fields of dynamic simulation and mathematical programming (cars, engines, etc.).

In the field of building and HVAC, the number of users of Matlab/Simulink has also been increasing rapidly in the last few years. The tool is suitable for many applications in this field as for example the study of energy consumption, control strategies, hydraulic and air flow studies, IAQ, comfort, sizing problems. More and more studies are being published using Matlab/Simulink environment for the development of specific tools and for simulations of buildings and technical building services.

The tool also allows "hardware in the loop" simulations, where parts of the system can be real components and others simulated (eg. real controllers can be tested in a virtual system).

To date, there is very little exchange of know-how and other information between the users of this tool which would allow the exchange of information about modelling or simulation techniques.

CSTB organises the first workshop on Building and HVAC simulation using the tool Matlab-Simulink and related toolboxes and third party software.

See the AIVC-CD for more information.

7th International summer school 'Solar Energy 2003' in Switzerland

Since 1982, Summer Schools on solar energy topics have been organised in Austria with the co-sponsorship of national and international organisations. These events, held in Igls/Tyrol (1982, 1985), Kaprun/Salzburg (1988) and Klagenfurt (1992, 1996, 2000), were devoted to solar energy resources, technologies, applications and economics.

The 7th International Summer School SOLAR ENERGY 2003 will take place for the first time in Switzerland at the Academia Engiadina in Samedan, from July 28th to August 8th 2003. It is an opportunity for post-graduates and young scientists to deepen their knowledge in diverse solar technologies through lectures, workshop activities and informal discussions with students and experts from many countries. For more information.

Innovation in Building Envelopes and Environmental Systems

http://leso.-

CISBAT Science Day
CSFF Industry Day
in association with
BuildingEnvelopes.org

The 2003 edition of the biannual scientific conference CISBAT will be organised at the EPFL in association a with Harvard University and MIT in the framework of BuildingEnvelopes.org as well as with the Swiss Association of Window and Façade Manufacturers (CSFF).

- 8 October 2003, Science Day, Conference CISBAT, under the responsibility of the EPFL Solar Energy and Building Physics Laboratory, and focuses on the perspectives offered by nano-, bio- and info-technologies in the field of renewable energies.
- 9 October 2003, CSFF Industry Day, focuses on current tendencies in facade construction and the Swiss low energy standard Minergie.

Simultaneous translation French-English is available on both days.

Swiss Federal Institute of Technology,
Solar Energy and Building Physics Laboratory,
CH 1015 - LAUSANNE

International workshop on Implementation of European Directive on Energy Performance of Buildings

As part of the European SAVE project ENPER (*http://www.-*), an international workshop on the implementation of the European Energy Performance Directive (EPD) was organised in Brussels on May 19. Some 115 delegates from 21 countries attended this workshop. This Directive, published on January 4 2003, obliges the Member States as well as the 10 candidate members to implement a range of regulatory measures regarding the energy performance assessment and certification of buildings (see March issue of AIR).

Mr. Randall Bowie

After the introduction by Peter Wouters, Randall Bowie (European Commission, Directorate General Transport and Energy) explained the overall context with respect to the implementation of the EPD. He announced that the so-called Article 14 Committee (this is an official committee which is expected to play a crucial role in the practical implementation phase) is expected to have its first meeting before the summer holidays. Moreover, the Commission is considering a call for tenders for the setting up of an 'EPB Directive Technical Forum' or 'Platform'.

Mr. Amilcar Dacosta

The first requirement in the EPD concerns 'the adoption of a general framework for a methodology of calculation of the integrated energy performance of buildings'. the European CEN standards are expected to play a crucial role. Amilcar Dacosta, programme manager at CEN, explained the envisaged strategy by CEN with respect to the EPD related standards. An 'EPD Project Group' has been established, consisting of the chairman and a second person of each of TC 89 (Thermal performances of buildings and building components), TC 156 (Ventilation for buildings), TC 169 (light and lighting), TC 228 (Heating systems in buildings) and TC 247 (controls for mechanical building services). This committee will be chaired by Jaap Hogeling (ISSO, Netherlands) who is already the convenor of the joint working group TC 89-156-228).

Four country related presentations showed the approach and progress in the national EPD implementation plans in Denmark (by Kirsten Engelund Thomson), France (by Marie-Christine Roger), Germany (by Hans Erhorn) and Portugal (by Eduardo Maldonado) respectively.

An interesting example of national networking was presented by David Strong for the UK: the DIAG (Directive Implementation Advisory Group) groups at present 17 professional institutions and umbrella trade associations. The aims of DIAG are multiple: to clarify the requirements of the Directive and to highlight any ambiguities concerning the Directive, to provide guidance on possible clarifications and their implications, to establish and support working groups to address specific aspects of the implementation of the Directive, to ensure that the Government receives robust and comprehensive guidance concerning the detailed implementation of the Directive and its implications, to provide a focus for the co-ordination of the various advisory groups to Government concerning the implementation of the Directive and to ensure effective communication between these groups.

Industry clearly has a very important role in the in in the implementation process of the EPDis for. On behalf of EuroACE, Rick Wilberforce gave a presentation about the perception of the EPD by industry and the needs for implementation.

Within the ENPER project, recommendations for improved harmonised procedures have been developed. These recommendations were presented by Dick van Dijk. Jean-Christophe Visier gave an overview of the technical needs for implementing the EPD.
Finally, Dick van Dijk gave also a presentation on the Kyoto Buildings platform (*http://www.-*).
All presentations can be found on the AIVC-CD.

The final workshop of the ENPER project will be held in Budapest on Monday September 8. A call for proposals is expected to be launched in the near future in the framework of the new programme Intelligent Energy for Europe (SAVE) on EPD related issues. Therefore, the workshop will be focused on the required future tasks with respect to the EPD implementation.

Next EPD related international workshop:

Budapest, Hungary
September 8, 2003

More info: www.enper.org

Ventilation, Humidity Control and Energy AIVC BETEC 2003

The 24th Conference of the Air Infiltration and Ventilation Centre
Washington USA
12 to 14 October 2003
http://www.aivc.org

Purpose
Enhancing indoor environmental quality, reducing moisture problems, and conserving energy are all increasing in importance. Mould, house dust mites and other microbiological organisms may cause health problems. Ventilation is a critical factor in the control of humidity levels in buildings. Because ventilation air is often heated or cooled, energy is a significant and unavoidable issue. The overall scope of the conference includes indoor environment in all buildings, with a particular focus on residential buildings. This conference will highlight results from research and practices from around the world.

Organising committee
The conference is jointly organised by:
International Network for Information on Ventilation (INIVE EEIG) on behalf of the Air Infiltration and Ventilation Centre (AIVC)
Building Environment and Thermal Envelope Council (BETEC)
of the National Institute for Buildings Sciences (NIBS)

Location
AIVC BETEC 2003 will be held at
Hamilton Crowne Plaza Hotel
1001 14th Street NW
Washington, DC 20005
United States of America

A contingent of rooms is being reserved for conference participants and accompanying persons at the **Hamilton Crowne Plaza Hotel** and a special group rate will be offered. The Hamilton Crowne Plaza Hotel is conveniently located just a few blocks from the White House, and close to shops and restaurants, with easy access to other hotels in the metropolitan area.

Dates
The Conference will start on Sunday evening October 12, 2003 with a welcome reception and will end on Tuesday evening October 14, 2003.

Registration fees

	Before August 1, 2003	From August 1, 2003
Full participants	$475	$575
Students	$275	$375

One full registration fee by participant is required for each technical paper included in the programme. Papers submitted without payment of the registration fee will not be inserted in the Conference proceedings nor included in the technical programme.

See *http://www.aivc.org* for registration.

The fees cover:
- Attendance at all oral sessions and all poster sessions;
- Breakfast, lunches and breaks throughout the conference;
- Light meals and drinks during the Sunday reception and Monday poster session;
- The proceedings.

Conference programme
Day 1: Sunday October 12, 2003
- 18.00: Registration opens
- 19.00 - 21.00: Welcome reception

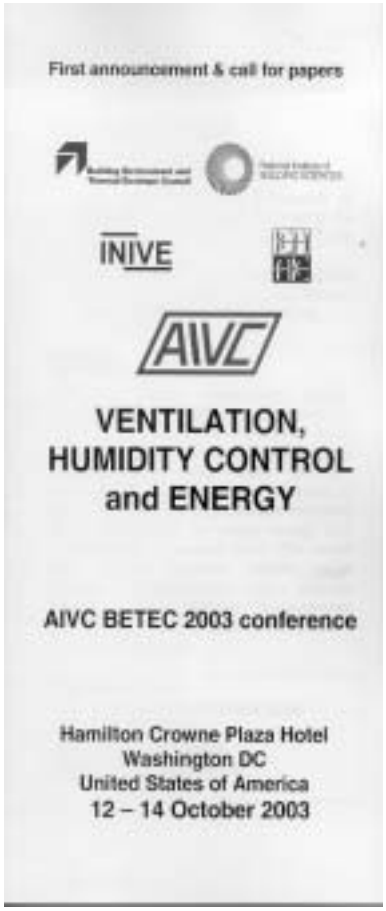
Day 2: Monday October 13, 2003
- Registration opens
- 08.30: Session 1: Keynote & Overview
- 10.00: Break
- 10.30: Session 2: Residential ventilation
- 12.00: Lunch
- 13.30: Session 3: Humidity in residences
- 15.00: Break
- 15.30: Session 4: Building envelope
- 17.00: End of session
- 20.00: Posters session 1
- 22.00: End of poster session

Day 3: Tuesday October 14, 2003
- 08.30: Session 6: Ventilation and controls
- 10.00: Break
- 10.30: Posters session 2
- 12.30: Lunch
- 13.30: Session 8: Heating/Cooling and Moisture Control
- 15.00: Break
- 15.30: Session 9: Ventilation Technologies
- 17.30: End of session 9
- 19.00: Conference dinner

Conference secretariats

INIVE EEIG
Boulevard Poincaré 79
BE-1060 Brussels, Belgium
Tel. +32.2.655.77.72
Fax +32.2.653.07.29
E-mail: *conferences.inive@bbri.be*
Contact: Stéphane Degauquier

NIBS
1090 Vermont Avenue, NW - Suite 700
Washington DC 20005-4905, USA
Tel. +1.202.289.7800
Fax : +1.202.289.1092
E-mail: *pcichowski@nibs.org*
Contact: Patricia Cichowski



The AIVC has been receiving a very positive response to its call for abstracts.

The list of accepted abstracts (67) is available on the AIVC-CD

REGISTRATION FORM
AIVC BETEC 2003 conference VENTILATION, HUMIDITY CONTROL and ENERGY
Hamilton Crowne Plaza Hotel, Washington DC USA, 12 – 14 October 2003

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	Before August 1, 2003	From August 1, 2003
Full participants	$475	$575
Students	$275	$375

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DC 20005

OR FAX to 202-289-1092 You can also register online. (You will receive a confirmation of registration by e-mail, fax or mail).

AIR + AIVC CD

The Air Information Review (AIR) is a quarterly newsletter containing topical and informative articles on air infiltration and ventilation research and application. The newsletter is distributed with the AIVC-CD.

This set contains the printed version of the Air Information Review and a CD-Rom with :

- Current Air Information Review (with annex documents)
- Related newsletters;
- Airbase (AIVC bibliographical database);
- AIVC publications;
- AIVC conference proceedings.

The set is available through subscription. Subscriptions are for 4 consecutive issues of AIR (from September issue to June issue). See selling prices on the order form.

Enquirers in INIVE countries (Belgium, France, Greece, Norway) can obtain AIR and the AIVC-CD at preferential rates (even free of charge in some countries). Please contact INIVE for practical information (*inive@bbri.be*).

Note: The CD Rom has been developed for use in a Microsoft Windows 95 or 98 environment. There is no guarantee that they will work with other operating systems.

AIRBASE

The full version of AIRBASE, the bibliographical database of AIVC, is available on the AIVC CD Rom. It contains almost 15,000 references and abstracts of articles and publications related to energy efficient ventilation.
New additions to AIRBASE include references of 88 selected papers from the recent “EPIC 2002 AIVC” Conference (Lyon, France - October 2002), as well as references of selected papers from recent “Indoor Air 2002” and “RoomVent 2002” Conferences.

Conference proceedings - CD

A CD-Rom with the proceedings of the last AIVC conferences is available. At present the CD contains the proceedings of AIVC conferences 1998, 1999, 2000 and 2001. Proceedings of 2002 conference will be included in a near future. See selling prices on the order form.

AIVC publications – CD

A CD-Rom with all the guides (5), annotated bibliographies (11) and technical notes (45 – some old superseded ones are missing) published by the AIVC between 1979 and 2002 is available. See selling prices on the order form.

The free publication of the month

One of the AIVC publications is available for free on the Internet (*http://www.aivc.org*). The publication is available for 1 month and afterwards replaced by another one.

Printed version of old technical notes

Since June 2001, the new publications of the AIVC are no longer produced in printed version. However remaining printed copies of previous AIVC documents are still for sale at ECBCS Bookshop (£ 15 + postage).

An overview of the remaining stock is available at *http://www.aivc.org/Publications/clearance.html* (mainly: Technical notes 39 to 51; Guide to energy efficiency ventilation; Improving ductwork: a time for tighter air distribution systems; Annotated Bibliographies 5 to 10, Conference proceedings 1995 to 2000).

Send orders by e-mail at *essu@ecbcs.org* (for printed AIVC publications only), or by fax at +44(0)121.262.1994, marked for the attention of Janet Blacknell.

Mailing Address:
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AIVC CONTACTS

Belgium
P. Wouters & Ch. Delmotte
Belgian Building Research Institute
Boulevard Poincaré 79
BE-1060 Brussels—Belgium
Tel: +32.2.655.77.11
Fax: +32.2.653.07.29
e-mail: aivc@bbri.be
website: http://www.bbri.be

France
M-C Lemaire
ADEME,
Département Bâtiment et Collectivités
500 Route des Lucioles
Sophia Antipolis
FR-06560 Valbonne—France
Tel: +33.4.93.95.79.56
Fax: +33.4.93.65.31.96
e-mail: marie-claude.lemaire@ademe.fr
website: http://www.ademe.fr

Contact for the diffusion of AIR in France:
francois.durier@cetiat.fr

Greece
M. Santamouris
Building Environmental Studies
Applied Physics Section
Department of Physics
University of Athens
University Campus
Building Physics 5
GR-15784 Athens—Greece
Tel: +30.1.727.68.41
Fax: +30.1.729.52.82
e-mail: msantam@cc.uoa.gr
website: http://www.uoa.gr

Netherlands
W. F. de Gids
TNO Building and Construction Research
Division of Building and Systems
PO Box 49
NL-2600 AA Delft—Netherlands
Tel: +31.15.26.95.300
Tel direct: +31.15.269.52.80
Fax: +31.15.269.52.99
e-mail: w.degids@bouw.tno.nl
website: http://www.bouw.tno.nl

Norway
J. T. Brunsell
Norwegian Building Research Institute
Forskningsveien 3b
PO Box 123
Blindern
NO-0314 Oslo—Norway
Tel: +47.22.96.55.00
Fax: +47.22.96.57.25
e-mail: jorn.brunsell@byggforsk.no
website: http://www.byggforsk.no

USA
M. Sherman
Indoor Air Quality Division
Buildings 90
Room 3074
Lawrence Berekeley Laboratory
Berekeley, California
USA-94720—United States of America
Tel: +1.510.486.40.22
Fax: +1.510.486.66.58
e-mail: mhsherman@lbl.gov
website: http://www.lbl.gov

Operating Agent
INIVE eeig
P. Wouters & Ch. Delmotte
Boulevard Poincaré 79
BE-1060 Brussels
Belgium
Tel: +32.2.655.77.11
Fax: +32.2.653.07.29
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