AIR INFORMATION REVIEW

Vol 27, No. 2, March 2006 A quarterly newsletter from the IEA Air Infiltration and Ventilation Centre

New AIVC Technical Note

Efficacy of Intermittent Ventilation for Providing Acceptable Indoor Air Quality

M.H. Sherman (Lawrence Berkeley National Laboratory)

AIVC Technical Note 60, 2006, 27 pp

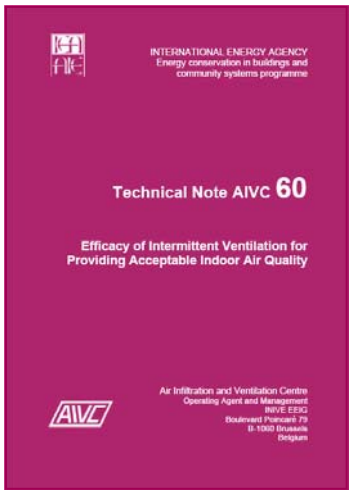
Ventilation standards and guidelines typically treat ventilation as a constant and specify its value. In many circumstances a designer wishes to use intermittent ventilation, rather than constant ventilation, but there are no easy equivalencies available. This report develops a model of efficacy that allows one to calculate how much intermittent ventilation one needs to get the same indoor air quality as a continuous value specified.

We have found that there is a simple relationship between three dimensionless quantities: the temporal ventilation effectiveness (which we call the efficacy), the nominal turnover and the under-ventilation time fraction. This relationship allows the calculation of intermittent ventilation for a wide variety of parameters and conditions. We can use the relationship to define a critical time that separates the regime in which ventilation variations can be averaged over from the regime in which variable ventilation is of low effectiveness.

We have found that ventilation load-shifting, temporary protection against poor outdoor air quality and dynamic ventilation strategies can be quite effective in low-density buildings such as single-family houses or office spaces. The results of this work enable ventilation standards and guidelines to allow this extra flexibility and still provide acceptable indoor air quality.

Keywords: Ventilation, Air Exchange Rate, Indoor Air Quality, Ventilation Standards

AIVC Online *AIVC TN 60 "Efficacy of Intermittent Ventilation for Providing Acceptable Indoor Air Quality".*



AIVC Conference 2006

Technologies and Sustainable Policies for a Radical Decrease of the Energy Consumption in Buildings
Lyon – France – 29 November – 1 December 2006
Change of dates: 20-22 November 2006
More information on page 8

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 is to encourage and increase information exchange among ventilation researchers and practitioners worldwide.

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Air Barrier Association of America

The Air Barrier Association of America (ABAA) was incorporated in the State of Massachusetts (USA) in 2001 and consists of stakeholders in the building enclosure industry. Such stakeholders include manufacturers, suppliers, distributors, architects, engineers, contractors, researchers, testing & audit agencies, consultants and building owners. ABAA is focused on leading the American industry into the future in a progressive and professional manner.

The association's long term strategy revolves around three intertwining goals:
- First, the association seeks to raise the standard of proficiency in the industry through the ABAA On-Site Quality Assurance Program, based on the principles outlined in ISO 9000.
- Second, ABAA will continue to play a pivotal role in the education, lobbying and marketing of the industry to government, the professional community, building owners, utilities and other industry stakeholders.
- Finally, ABAA is dedicated to furthering continuing education in the industry. ABAA offers premier training to installers, estimators, managers and administrators on the contractor side, as well as AIA accredited courses for design professionals.

More information can be found on the Internet at *http://www.airbarrier.org*.

New ventilation requirements in Flemish Region

Belgium consists of 3 regions - The Region of Brussels Capital, the Flemish Region and the Walloon Region - each of the regions is in charge of regulations regarding ventilation and energy efficiency of buildings.

The Walloon Region has already had since 1996 minimum ventilation requirements for dwellings, offices and schools.

Since January 1 2006, there are also minimum ventilation requirements in the Flemish Region for all buildings which are aimed at people.

The legal framework for the new regulation is given by the Decree on the Energy Performance and Indoor Climate, adopted by the Flemish Parliament on 7 May 2004. The technical specifications are given in Execution Orders, approved by the Flemish Government.

There are 2 different sets of requirements:
- For dwellings, the requirements are specified in annex 5 of the Execution Order. This annex refers to the Belgian Standard NBN D50-001 whereby some additional specifications are given.
- For other buildings, the specifications are given in annex 6 of the Execution Order. This annex refers mainly to European Standards.

AIVC Online *Execution Order (In Dutch)*
AIVC Online *Execution Order (In French)*

These regulations are part of an overall new legal framework which imposes minimum energy performance and indoor climate performances for buildings and it is part of the Flemish implementation of the European Energy Performance of Buildings Directive.

A specific point of attention in the Flemish regulation is the framework for control:
- It is mandatory to give a detailed description of the executed measures at the end of the works.
- This description has to be send through the internet to the Flemish administration. A specific software tool has been developed.
- In case of non-compliance, there are administrative fines.

More information can be found on *http://www.energiesparen.be* (only in Dutch). Also the software can be downloaded on this website.

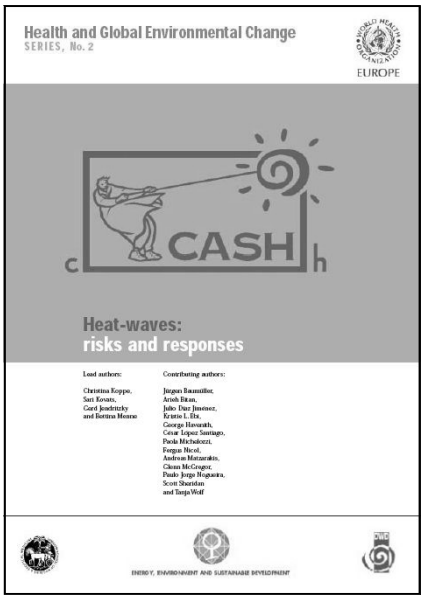
A regular newsletter is published by the Flemish administration. Registration can be done by sending an e-mail to *EPB-nieuwsbrief@vlaanderen.be*.

Heat-waves: risks and responses

High air temperatures can affect human health and lead to additional deaths even under current climatic conditions.

Heat-waves occur infrequently in Europe and can significantly affect human health, as witnessed in summer 2003. This report, published by the World Health Organisation (WHO – http://www.euro.who.int), reviews current knowledge about the effects of heat-waves, including the physiological aspects of heat illness and epidemiological studies on excess mortality, and makes recommendations for preventive action.

Measures for reducing heat related mortality and morbidity include heat health warning systems and appropriate urban planning and housing design. Ventilation is mentioned as one of the appropriate measures.



More heat health warnings systems need to be implemented in European countries. This requires good coordination between health and meteorological agencies and the development of appropriate targeted advice and intervention measures. More long-term planning is required to alter urban bioclimates and reduce urban heat islands in summer. Appropriate building design should keep indoor temperatures comfortable without using energy-intensive space cooling.

As heat-waves are likely to increase in frequency because of global climate change, the most effective interventions, measures and policies to protect the health of vulnerable Europeans need to be developed and evaluated. It is clear that the use of passive cooling techniques, e.g. night ventilation, can reduce the risk of overheating.

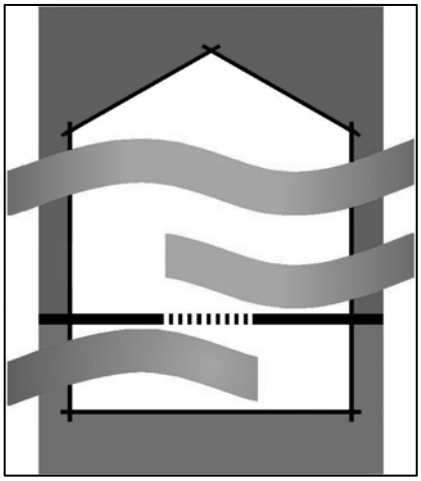
AIVC Online *Heat-waves: risks and responses – Health and Global Environmental Change Series, no 2. World Health Organisation, 2004, pp 124.*

Final report on passive cooling (COOLHOUSE)

The COOLHOUSE project (2000-2003), coordinated by S. Burton (FaberMaunsell Ltd), has demonstrated the use of passive cooling techniques in southern regions of Europe.

The aim is to create comfortable summer conditions in domestic scale buildings without the use of mechanical cooling systems.

The project focussed on three sites, a private development of houses for sale in south west Portugal, an old people's home in south France and a community centre in mid Italy. All were new buildings and were designed to provide cool internal conditions by passive means such as using solar shading and thermal mass, with the addition in all three cases of ground cooling pipes, through which external air is drawn, cooled by the ground and delivered to the buildings when cooling is needed. This combination of measures was designed, constructed and monitored as part of the project.



The ground pipe systems used PVC pipes buried 2-3 metres below ground with air drawn through using electric fans. The results demonstrate that the whole package of measures is successful in providing summer comfort. Particularly the ground pipes in the Portuguese and French cases, where cool air was always available when external temperatures were high. There are also benefits to the heating of the buildings in winter if the preheated air is used.

The project concludes that there are no architectural difficulties in buried pipe system or providing and using internal thermal mass and that the COOLHOUSE package of measures could be replicated in different building types across all southern Europe, and possibly in more northern regions as global warming advances making the requirement for cooling of buildings more common in the future.

AIVC Online *Final report*

Use of Earth to Air Heat Exchangers for Cooling

M. Santamouris (University of Athens)

AIVC VIP 11, 2006, 8 pp

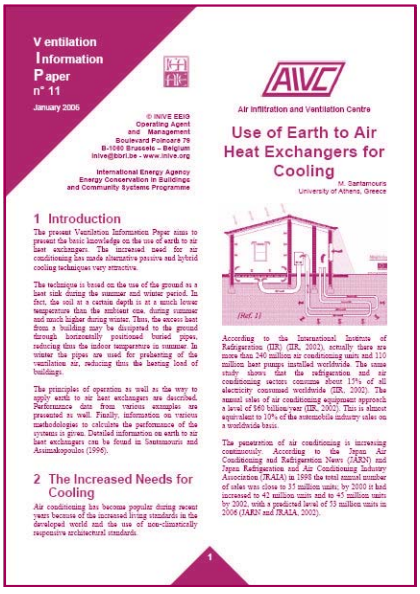
The Ventilation Information Paper aims to present the basic knowledge on the use of earth to air heat exchangers. The increased needs for air conditioning has made alternative passive and hybrid cooling techniques very attractive.

The technique is based on the use of the ground as a heat sink during the summer and winter period.

In fact, the soil at a certain depth is at a much lower temperature than the ambient one summer and much higher during winter. Thus, the excess heat from a building may be dissipated to the ground through horizontally positioned buried pipes, reducing thus the indoor temperature in summer. In winter the pipes are used for preheating of the ventilation air, reducing thus the heating load of buildings.

The principles of operation as well as the way to apply earth to air heat exchangers are described. Performance data from various examples are presented as well. Finally, information on various methodologies to calculate the performance of the systems is given. Detailed information on earth to air heat exchangers can be found in Santamouris and Assimakopoulos (1996).

AIVC Online *AIVC VIP 11 "Use of Earth to Air Heat Exchangers for Cooling"*


Ventilation Information Paper n° 11
January 2006

AIVC
Air Infiltration and Ventilation Centre

Use of Earth to Air Heat Exchangers for Cooling

M. Santamouris
University of Athens, Greece

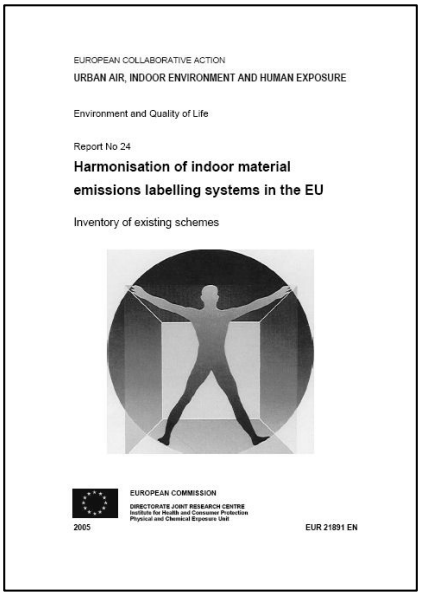
1 Introduction

2 The Increased Needs for Cooling

New ECA report "Harmonisation of indoor material emissions labelling systems in the EU"

ECA-IAQ (European Collaborative Action, Urban Air, Indoor Environment and Human Exposure), 2005, Harmonisation of indoor material emissions labelling systems in the EU - Inventory of existing schemes, Report no 24, pp 48.

Indoor Air Quality (IAQ) and emissions from building materials have been a major challenge for scientists, industry and consumers, over the last decades. In response to the need for improved consumer protection, different kinds of labelling systems for material emissions have been developed in many European countries and by industrial organisations. The main purpose is to protect consumers from exposure to chemical pollutants and resulting adverse health effects (i.e., carcinogenic, teratogenic, irritant) or annoyance by bad odours, which could be caused by chemical emissions from materials. This protection can be effectively achieved by supporting the market demand for low emitting materials. The labelling systems developed are typically voluntary for the manufacturers.


EUROPEAN COLLABORATIVE ACTION

URBAN AIR, INDOOR ENVIRONMENT AND HUMAN EXPOSURE

Environment and Quality of Life

Report No 24

Harmonisation of indoor material emissions labelling systems in the EU

Inventory of existing schemes

EUROPEAN COMMISSION

DIRECTORATE JOINT RESEARCH CENTRE
Institute for Health and Consumer Protection
Physical and Chemical Exposure Unit

2005 EUR 21891 EN

In spite of a trend towards European harmonisation, most of these labelling systems are mainly focussed on national markets and often require specific tests. Despite a common market there is no harmonised system for material emission labelling available in Europe.

This report reviews and discusses recent developments concerning the indoor material labelling schemes at European level.

AIVC Online *The new report is available online at the AIVC website together with the 23 other reports from the same series.*

ASHRAE launches a new eLearning system

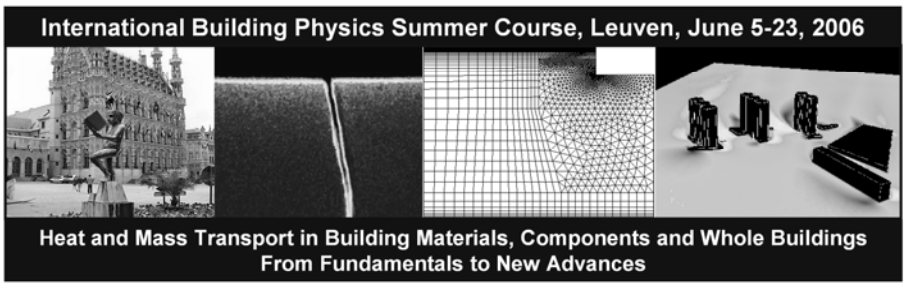
A new eLearning system is being launched by the American Society of Heating, Refrigerating and Air-Conditioning Engineers (ASHRAE) and Elsevier.

The system provides complete learning experiences that focus on learning-by-doing that can be taken at any time and at the learner's own pace. It offers online instruction with interactive exercises and problem solving demonstrations supplemented by authoritative course readers in eBook and printed formats.

The launch was announced at ASHRAE's 2006 Winter Meeting held in Chicago from Jan. 21-25.
The system also offers integrated assessment, skills tracking for earning CEU/PDH credits and online registration and retrieval of certificates of course completion.

The first course Fundamentals of HVAC Systems will be available April 3. The course will be supported by Learning Bursts, in-depth scenario-based training and simulation exercises with a heavy focus on applicability. Learning Bursts allow learners to apply the information presented and practice extensively without making costly mistakes in the real world.

For more information about ASHRAE eLearning Systems, including an interesting demo, visit *http://www.ashrae-elearning.org*.



Heat and Mass Transport in Building Materials, Components and Whole Buildings from Fundamentals to New Advances

5-23 June 2006 - Leuven

Following the successful edition of the Building Physics Summer Course, held in Montreal, Canada, last year, the 2nd International Building Physics Summer Course will be held in Leuven this year. The course is coordinated by Jan Carmeliet at the Department of Civil Engineering, Katholieke Universiteit Leuven (K.U.Leuven), Belgium. The course is intended for Ph.D and graduate students and for researchers in Building Physics, Building Engineering, Civil and Environmental Engineering, Material Science, Bio-engineering, Mechanical Engineering and Chemical Engineering. It is offered as an international course for which credits can be obtained.

The intention of the course is to provide the participants with the knowledge of the fundamentals of heat, air, liquid water and water vapour transfer as well as the latest advances and developments in this field, including both numerical and experimental aspects. To this extent, the course has been composed as a unique combination of theory, exercise and laboratory experiments, covering a wide range of topics. Theory is taught in the morning sessions, while exercises and laboratory experiments are held in the afternoon.

Wednesdays are reserved for Ph.D and M.A.Sc presentations by the participants and for software workshops in which the participants will perform CFD (Computational Fluid Dynamics) and HAM simulations.

Information for registration and accommodation can be found on the course website: *http://www.kuleuven.be/bwf/projects/summercourse/*.

AIVC Online *More detailed information on the course.*

DAY	Monday	Tuesday	Wednesday	Thursday	Friday
5-9 June	MOISTURE 1 Fundamentals of transport in porous materials *J. Carmeliet* *S. Roels*	MOISTURE 2 Isothermal moisture transport *J. Carmeliet* *S. Roels*	Ph.D – M.A.SC presentations by participants	NUMERICAL 1 Stationary problems Finite element / Control volume *H. Janssen*	NUMERICAL 2 Non-linear, non-stationary problems *H. Janssen*
12-16 June	MOISTURE 3 General and simplified heat-mass transport *J. Carmeliet* *S. Roels*	AIR 1 Navier-Stokes equations and lower dynamic approximations *M. de Paepe*	Software workshop FLUENT (CFD) *B. Blocken*	BOUNDARY 1 Boundary conditions for HAM modelling *H. Janssen* *B. Blocken*	NUMERICAL 3 Coupled heat & mass transfer, numerical optimisation *H. Janssen*
19-23 June	AIR 2 Heat-Air-Vapour transport, boundary layers *M. de Paepe*	BOUNDARY 2 Building aerodynamics, wind and rain *B. Blocken*	Software workshop HAM modelling *H. Janssen*	BOUNDARY 3 Wind-driven rain *B. Blocken*	AIR 3 Heat-Air-Vapour transfer in whole buildings *M. de Paepe*

European BlowerDoor-Symposium

Building airtightness and dwelling Ventilation
23 & 24 June 2006 in Fulda (Germany)

The 1st European BlowerDoor-Symposium dedicated to building airtightness and ventilation continues the German BlowerDoor-Symposium, of which the tenth took place in June 2005 in Hanover/Germany.

"Dwelling ventilation" has been added to the central subject of the conference "airtightness of buildings" because both themes are fundamentally important for the field of energy efficient buildings and they are tightly linked to each other.

http://www.e-u-z.de/htm/bds_eu_1.htm

AIVC Online *First announcement*

PhD course in Computational Fluid Dynamics (CFD) and Experimental methods in building related flows

7-12 August 2006 - Aalborg

AALBORG UNIVERSITET

Aalborg University is organising a PhD course on CFD and experimental methods in air flows in buildings. The course takes place from August 7 till 12. The course is relevant to all PhD candidates working with project, e.g. air distribution in buildings and rooms, comfort and air quality, cross infection problems, air flow in systems, air flow around buildings, natural and hybrid ventilation, air flow around persons, exposure of persons and smoke management in buildings.

AIVC Online *Invitation and information*

CLIMA 2007 Helsinki, Finland

WellBeing Indoors
CLIMA 2007 10-14 JUNE • HELSINKI • FINLAND

Creating wellbeing in indoor environments in an environmentally sustainable manner is the theme of CLIMA 2007.

The conference, organized by the Federation of European Heating and Air-Conditioning Associations (REHVA) and endorsed by the American Society of Heating, Refrigerating and Air-Conditioning Engineers (ASHRAE), will be held June 10-14, 2007, in Helsinki, Finland.

A call for papers will be announced in February with abstracts due in October.

Main themes will be energy performance of buildings, energy efficient heating and cooling systems, ventilation, indoor environment, health and productivity, ecological domestic water and waste systems, building energy management systems, and intelligent buildings.

For more information, visit *http://www.ashrae.org/clima2007*, or contact *info@clima2007.org*.

Thermal Performance of the Exterior Envelopes of Whole Buildings X International Conference

Call for Papers & Workshops
Abstracts Due May 12, 2006

The tenth international conference on Thermal Performance of the Exterior Envelopes of Whole Buildings X, organized by the Oak Ridge National Laboratory (ORNL), will be held on December 2-7, 2007, at the Sheraton Sand Key Resort, Clearwater Beach, Florida. This conference will present two concurrent tracks:

Principles - Devoted to Research; and Practices - Focussing on Practical Applications and Case Studies. Special topic workshops will be presented before or after the conference.

More information:
http://www.ornl.gov/sci/buildings/

AIVC Online *Call for Papers & Workshops*

Passive and low energy cooling for the built environment – PALENC 2005 180 papers available online

The PALENC conference 2005 was held in Santorini, Greece, 19-21 May 2005.

The scope of this Conference included all aspects of technology dealing with the summer performance of buildings and in particular ventilation, solar control, thermal mass, thermal comfort, urban microclimate landscaping, low energy architecture, innovative components and materials legislation and regulations, advanced and alternative air conditioners, demand side management, etc. The main aim was to present and discuss the state of the art of research and applications dealing with the summer performance of buildings.

180 papers were presented by scientists and researchers from all over the world, suggesting new methods for the amelioration of the thermal conditions in the urban environment and the decrease of energy consumption due to air conditioning.

A book of proceedings of 2 volumes was published and distributed to the participants during the conference.

AIVC Online *The 180 papers are now available online on the AIVC website for the subscribers*.

More information about the conference:
http://palenc2005.conferences.gr/

Outcome of workshop "Energy Efficient technologies for governmental buildings – new and retrofits"

A workshop focussing on Government energy conservation models which can influence a society's values was held in Chicago on January 19 and 20 2006 and organised by the US Army Corps of Engineers. The workshop was co-sponsored by US Department of Defence, US Department of Energy, ASHRAE, and IEA ECBCS Programme Annex 46. 85 industry experts representing end users, decision makers, engineers, researchers, HVAC and other systems manufacturers, ESPC contractors from 12 countries participated in the workshop.

The programme included 36 presentations and covered various ventilation related topics, energy regulations, the work of IEA ECBCS and the building-up of a database of energy efficient technologies.

More information about this workshop can be found on:
https://kd.erdc.usace.army.mil/projects/ecbcs/workshops/siw_chicago/

State-of-the art of ventilation standard in Korea

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The Ministry of Environment recently established a ventilation standard in order to solve the SHS (Sick House Syndrome) problem (April, 2004). On February 13, 2006, the Ministry of Construction and Transportation, which is in charge of constructing and administrating newly constructed buildings such as apartment blocks, made it mandatory to install ventilation systems and also established the ventilation standard suitable for the type and characteristics of buildings. The ventilation standard was established to improve the healthy indoor quality of apartment blocks and multi-purpose facilities which are new constructions or the remodelling more than 100 units.

The detailed ventilation standard is as follows.

- The Natural ventilation system: Except for windows and doors, it represents a ventilation system that is able to be ventilated constantly by outdoor air and the pressure difference of the indoor and outdoor air. A Local construction committee judges whether the natural ventilation system can satisfy this amount of ventilation.
- The Mechanical ventilation system: It represents compulsory ventilation equipment by installing a mechanical system such as a ventilator that is operated by a fan. Basic contents for installing the mechanical ventilation system were decided. In addition, other detailed contents observe the Korean industrial Standard (KS).

1. The amount required for ventilation is calculated based on a period of time in a room used by the most people.
2. Among medical facilities, rooms used for special purposes, like operating rooms, can be decided by the administration's president.
3. Among the car facilities, in the case of indoor parking lot (except for mechanical parking lot), it must be calculated by the amount of ventilation per unit area. ($m^3/m^2 \cdot h$)

Classification of multi-purposed facility		Demanded ventilation rate (m^3/person.hour)	Note
Underground facilities	underground subway station	25 or more	-
	Underground arcade	36 or more	Gross area of shop: 2000m^2 or more
Culture and assembly facilities		29 or more	Gross area : 3000m^2 or more
Sale and business facilities		29 or more	Gross area : 2000m^2 or more
Medical facilities		36 or more	Gross area : 2000m^2 or more
research and welfare facilities		36 or more	Gross area : 1000m^2 or more
Car facilities (indoor parking lot)		27 or more	Gross area : 2000m^2 or more
Other facilities		25 or more	Gross area : 500m^2 or more

In order to apply the mechanical ventilation system , these are the main requirements:

- The ventilation system applies a regular ventilation system for the effective reduction of poisonous chemical substances if these are produced continuously.
- For the efficient use of energy, it is assumed that the ventilation system is used with natural ventilation.
- Establish the ventilation system that can uniformly distribute the amount of air required for ventilation of each room.
- Use a ventilation system so that the effect due to the change of outdoor air is less.
- Plan the systematic air flow path, and apply the ventilation system so that the air path is not affected by outdoor air.
- In order to keep the ventilation effect and the amount of ventilation, ensure the infiltration performance of the skin of apartment house is 1cm^2/m^2 or below.
- The outside air must not disturb the indoor thermal environment or deteriorate the thermal comfort of residents.

Also, in the case of a multi-purpose facility, the ventilation standard has been revised from the current four types to seven types.


SECOND ANNOUNCEMENT
PRELIMINARY PROGRAMME
EPIC 2006 AIVC
PALAIS DES CONGRÈS,
LYON, FRANCE
29 NOVEMBER – 1 DECEMBER 2006
Change of dates: 20-22 November 2006
THE 4TH EUROPEAN CONFERENCE ON ENERGY PERFORMANCE & INDOOR CLIMATE IN BUILDINGS
THE 27TH CONFERENCE OF THE AIR INFILTRATION & VENTILATION CENTRE
CONFERENCE OF THE IEA PROGRAMME ON ENERGY CONSERVATION IN BUILDINGS & COMMUNITY SYSTEMS
Technologies & Sustainable Policies
for a Radical Decrease
of the Energy Consumption in Buildings
AIVC

Scope of the conference
Given the oil crisis and the huge increase of the energy consumption (and its environmental impact), the theme of the conference focuses on the sustainability principles to be applied in the built environment.

In order to achieve a sustainable development with respect to the energy use and indoor climate in buildings, significant actions are required in the short and long term. The conference will pay attention to both aspects. Practical HVAC aspects are covered during the conference.

The 3-day conference is organised in the framework of the 4th European Conference on Energy Performance and Indoor Climate in buildings (EPIC), the 27th Conference of the Air Infiltration and Ventilation Centre (AIVC – http://www.aivc.org) and the 1st conference of the International Energy Agency - Programme on Energy Conservation in Building and Community Systems) http://www.ecbcs.org.

Target audience
- Industrial manufacturers and developers of building components
- Consultant engineers
- Designers and architects
- Researchers
- Building and housing estate managers
- Policy makers and officials involved in housing, construction and energy
- People involved in standardization

Topics
1. Extreme Low Energy Buildings and Buildings with Positive Energy
2. Energy Performance Regulations and Certification: where are we and where to go?
3. The Existing Building Stock: Technical, Economical and Social Aspects for a Wide Scale Upgrading
4. Performance Assessment of Building Components and Installations
5. Sustainable Urban Planning
6. Advanced Glazing, Façade and HVAC Technologies
7. Natural Ventilation in Urban Settlements
8. Design of Buildings of High Architectural and Environmental Quality
9. Contributions & Challenges of the Information Society in relation to achieving Environmental Quality
10. Indoor Climate Criteria in relation to Sustainable Building
11. Indoor Climate, Energy & Economy, i.e. the Economic Value of Indoor Climate, the Overall Cost of Low Energy Concepts
12. Opportunities & Barriers for the integration of Renewables in the Built Environment
13. International and National Policies for medium and long term Energy Management – Post-Kyoto
14. Innovative Concepts for Education and Training

Conference Programme
There will be 4 parallel sessions during the whole duration of the conference (with the exception of the opening and closing session).

Each of the parallel sessions covers a specific topic:

1. AIVC track organised by the Air Infiltration and Ventilation Centre
A total of 8 sessions will cover a wide range of topics dealing with ventilation, e.g. development of new ventilation systems, ventilation and thermal comfort, indoor air quality, energy performance of ventilation systems, airtightness of buildings

2. EPBD and SAVE track organised by the EPBD Buildings Platform
Also this track contains 8 sessions during which the focus is primarily on the implementation of the European Energy Performance of Buildings Directive. Information will be provided about the relevant projects of the SAVE programme, the activities in the EPBD concerted Action and the EPBD Buildings Platform, the mandate given by the EC to CEN for developing a whole range of standards facilitating the implementation of the EPBD. Moreover, a wider view on the EC policy regarding energy in buildings as well as the long term challenges will be presented.

3. IEA track organised by the International Energy Agency
For more than 30 years, the International Energy Agency (IEA) has been running a whole range of projects focusing on the energy performance of buildings. Many of these projects are managed by the IEA Programme on Energy conservation in buildings and community systems (ECBCS).

In total, 8 of these so-called annexes will lead a session covering topics as low exergy systems, high performance thermal insulation, commissioning of buildings and HVAC, testing and validation of energy simulation tools, integrating environmentally responsive elements in buildings, energy efficient lighting, energy efficient retrofit buildings for governmental buildings, energy efficient retrofits of schools.

Session 1: Improving the learning and teaching environment by energy efficient retrofits
www.ecbcs.org/annexes/annex36.htm

Session 2: Low exergy systems for heating and cooling of buildings
www.ecbcs.org/annexes/annex37.htm

Session 3: High performance thermal insulation
www.ecbcs.org/annexes/annex39.htm

Session 4: Commissioning of buildings and HVAC systems
www.ecbcs.org/annexes/annex40.htm
www.ecbcs.org/annexes/annex47.htm

Session 5 - Part 1: Testing and validation of building energy simulation tools
www.ecbcs.org/annexes/annex43.htm

Session 5 - Part 2: Heat pumping and reversible air conditioning
www.ecbcs.org/annexes/annex48.htm

Session 6: Integrating environmentally responsive elements in buildings
www.ecbcs.org/annexes/annex44.htm

Session 7: Energy Efficient Electric Lighting for Buildings, E3Light
www.ecbcs.org/annexes/annex45.htm

4. EPIC track
During these sessions, there will be a wide range of presentations in relation to the conference topics.

Change of dates: 20-22 November 2006

Wednesday 29/11/2006					
09:30 – 13:00	**Opening session**				
	Room 1	Room 2	Room 3	Room 4	Other rooms
14:00 – 15:45	EPIC topics	**AIVC**	IEA	EPBD and SAVE	
16:15 – 18:00	EPIC topics	**AIVC**	IEA	EPBD and SAVE	
Thursday 30/11/2006					
09:00 – 10:45	EPIC topics	**AIVC**	IEA	EPBD and SAVE	
11:15 – 13:00	EPIC topics	**AIVC**	IEA	EPBD and SAVE	
14:00 – 15:45	Opening CLIMAMED	**AIVC**	IEA	EPBD and SAVE	Epic topics
16:15 – 18:00	CLIMAMED	**AIVC**	IEA	EPBD and SAVE	Epic topics
19:00 – … ...	Conference dinner				
Friday 01/12/2006					
09:00 – 10:45	EPIC topics	**AIVC**	IEA	EPBD and SAVE	CLIMAMED
11:15 – 13:00	EPIC topics	**AIVC**	IEA	EPBD and SAVE	CLIMAMED
14:00 – 15:45	Closing EPIC				CLIMAMED
16:15 – 18:00	Closing CLIMAMED				

Organizing committee

The Conference is jointly organized by:
ENTPE (Ecole Nationale des Travaux Publics de l'Etat) Vaulx-en-Velin, France
INIVE EEIG (International Network for Information on Ventilation) on behalf of AIVC, Brussels, Belgium
IEA ECBCS (International Energy Agency Energy Conservation in Buildings and Community Programme)

Conference chairmen

G. Guarracino, ENTPE, Vaulx-en-Velin, France
P. Wouters, INIVE EEIG, BBRI, Brussels, Belgium
M. Atif, IEA ECBCS, NRC, Canada

Scientific chairmen

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M. Santamouris, University of Athens, Greece
M. Sherman, LBL, USA
H. Yoshino, University of Tohoku, Japan

Scientific Committee

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A. Athienitis, Canada
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M. Virtanen, Finland
K. Voss, Germany
A. Wagner, Germany
A. Zhivov, USA

Registration fees

	EPIC-AIVC only	CLIMAMED only	EPIC-AIVC + CLIMAMED
Before June 1 – Members of french AICVF	**600 €uros**	**150 €uros**	**675 €uros**
Before June 1 – Others	**600 €uros**	**175 €uros**	**698 €uros**
After June 1 - Members of french AICVF	700 €uros	200 €uros	810 €uros
After June 1 – Others	700 €uros	225 €uros	833 €uros
All attendants – on site	700 €uros	250 €uros	855 €uros
Students: no Climamed proceedings & no gala	300 €uros	50 €uros	350 €uros
Students: Climamed proceedings & gala included	300 €uros	100 €uros	400 €uros
Conference dinner	**50 €uros**	**Included**	**included**

Conference proceedings
All accepted papers will be published in the Conference Proceedings and delivered to participants at the Conference (printed proceedings AND CD-ROM).
Best papers will be published in a special issue of a scientific journal.

Related event
CLIMAMED conference
During the last 2 days of the EPIC 2006 AIVC Conference (30 November - 1 December 2006), the Climamed conference will take place on a different floor of the same Congress Centre. The Climamed Conference is an annual event organized by the REHVA members in France, Italy, Portugal or Spain. The 2006 conference is organized by AICVF, french member of REHVA. Participants of the EPIC 2006 AIVC Conference will also be able to participate in the Climamed Conference at a reduced registration fee. This event is an opportunity to gather architects, engineers, researchers and producers of HVAC systems (*http://www.climamed2006.org*).

Venue
The EPIC 2006 AIVC Conference will be held at the "Palais des Congrès", the Convention Centre, Lyon, in the heart of the Cité Internationale.
SECIL, Cité Internationale,
50 Quai Charles de Gaulle,
69463 Lyon Cedex 06, France,
phone: +33.4.72.82.26.26,
fax: +33.4.72.82.26.27,
http://www.palais-des-congres.com.

Language
English will be the official language. Simultaneous translation in English and French will be provided for the opening and closing sessions.

Conference Secretariat

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Fax: +33.4.72.04.70.41 -
E-mail: epic2006aivc@entpe.fr -
http://epic.entpe.org

Next annoucement and programme
May 2006

Conference Dinner
The Conference Dinner will be organized on Thursday evening at a cost of 50 €uros per guest.

Hotel information
A contingent of rooms will be booked for conference participants and accompanying persons at the nearby Hilton Hotel.

For further information on other categories of hotels, please refer to web site *http://epic.entpe.org*.

One full registration fee per participant is required. Papers submitted without payment of the registration fee will not be printed in the Conference Proceedings nor included in the technical programme.

The fee covers:
- Attendance of oral sessions, poster sessions and workshops
- Coffees and lunches during the Conference
- Printed conference Proceedings and CD-ROM of papers.

EPBD BUILDINGS PLATFORM
ENERGY PERFORMANCE OF BUILDINGS DIRECTIVE

EPBD Buildings Platform

It is expected that the implementation by the EU Member states of the European Energy Performance of Buildings Directive (EPBD) will have a major impact on the energy performance of European buildings. As far as AIVC is concerned, it also will have a major impact on the availability and energy performances of ventilation systems.
In order to ensure that the EPBD effectively leads to substantial energy savings and increased use of renewable energies, the EPBD Buildings Platform was launched by the European Commission on 1 January 2006 in the framework of the Community programme "Intelligent Energy – Europe, 2003-2006" (*http://europa.eu.int/comm/energy/intelligent/index_en.html*).

The overall objectives of the project are to support the implementation of the EPBD in the 25 EU Member States plus Bulgaria and Romania by:

- Setting up mechanisms for the transfer of information between all stakeholders;
- Helping implement the Directive by specific actions and co-ordinate the activities of the various stakeholders (including Concerted Action and IEEA-SAVE projects);
- Providing input and / or tools to support the Commission and Member States in the follow up and evaluation of the impact of the Directive in light of early experience.

The project, which is coordinated by INIVE EEIG, envisages the following deliverables (from January 2006 to June 2008):

- A **Website**;
- A database driven **Newsletter**;
- Various **databases** covering publications, standards, software tools, events, etc.;
- Approximately **50 EPBD Information Papers** covering a wide range of topics such as CEN status, SAVE projects, National implementation status, highlights of EPBD related conferences, European activities, etc. **Translation services** will be available;
- An active **collaboration** with key Community initiatives like ManagEnergy, Sustainable Energy Europe Campaign and other European actions and leading European Conferences;
- An **active support** to Member States and stakeholders through Helpdesk and targeted actions;
- **Special EPBD monitoring reports** prepared at the request of the EC.

More information and a free webzine will be available at *http://www.buildingsplatform.org*.

Through this platform, it is expected that the ventilation society will be well informed about the status and impact of the implementation of the EPBD (and related work, e.g. CEN standards…).

Intelligent Energy Europe

A series of new European SAVE projects have started

The European Commission has approved a series of 27 contracts in the framework of the SAVE programme.

Within this call, specific attention has been given to the social housing sector. The existing dwelling stock in general and the existing social housing stock in particular is in many countries confronted with poor indoor air quality conditions resulting in condensation and mould problems as well as health concerns. It is clear that ventilation aspects should be a priority in most retrofitting projects whereby a cost-effective combination of improving indoor climate conditions and energy efficiency is the challenge.

Among the approved projects, only 'EL-TERTIARY' and 'TREES' refer to ventilation. However, we hope and expect that most of the projects will pay attention to the ventilation aspects.

The list is given below:

4EM-MCP Energy Efficient Electric Motor Systems in New Member and Candidate Countries

CEECAP Implementing EU Appliance Policy in Central and Eastern Europe

Eco n' Home Eco n' Home or how to reduce energy consumption in Household

EI-Education Energy Intelligent Education for Retrofitting of Social Houses

EL-TERTIARY Monitoring Electricity Consumption in the Tertiary Sector

Energy+Pumps Technology procurement for very energy efficient circulation pumps

ENERinTOWN Monitoring and control of energy consumption in municipal public buildings over the internet

EnERLIn EuropeaN Efficient Residential Lighting Initiative

EPI-SoHo Energy Performance Integration in Social Housing, a strategic approach for portfolio management

E-RETROFIT-KIT Tool-Kit for "Passive House Retrofit"

ESAM Energy Strategic Asset Management in Social Housing Operators in Europe

E-Street Intelligent Road and Street lighting in Europe

EURO-TOPTEN Reducing energy consumption: making efficient products the normal and best choice for consumers, retailers and manufacturers

FACTOR 4 Programme of actions Factor 4 in existing social housing in Europe

GREEN-IT Green initiative for energy efficient eco-products in the construction industry

GreenLabelsPurchase GreenLabelsPurchase - making a greener procurement with energy labels

InoFin Innovative Financing of Social Housing Refurbishment in Enlarged Europe

ISEES Improving the Social Dialogue for Energy Efficient Social Housing

New GreenLight The European GreenLight Programme in New Member States

NIRSEPES New Integrated Renovation Strategy to improve Energy PErformance of Social housing

PROEFFICIENCY Pro-efficient cold & lighting products

REMODECE Residential Monitoring to Decrease Energy Use and Carbon Emissions in Europe

RESHAPE Retrofitting Social Housing and Active Preparation for EPBD

ROSH Development and marketing of integrated concepts for energy efficient and sustainable retrofitting of social Housing

SEEDT Strategies for development and diffusion of Energy Efficient Distribution Transformers

SHARE Social Housing Action to Reduce Energy Consumption

TREES Training for Renovated Energy Efficient Social housing

An on-line update of the information can be found on *http://europa.eu.int/comm/energy/intelligent/projects/save_en.htm*.

AIVC Online *Overview of the projects started in 2005*

AIVC Online *List of projects started in 2006 with information and description*

Commissioning of buildings and HVAC systems for improved energy performance

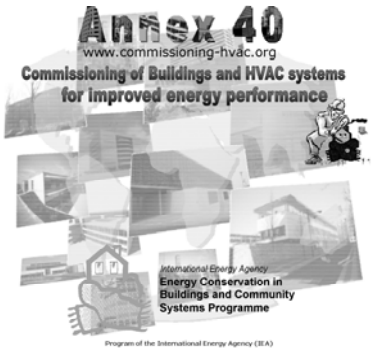
IEA ECBCS Annex 40

The primary goal of building commissioning, from an energy perspective, is to verify and optimise the performance of energy systems within a building.

The objective of annex 40 is to develop, validate and document tools for commissioning buildings and building services that will help facilitate the achievement of this goal.

These tools includes guidelines on commissioning procedures and recommendations for improving commissioning processes, as well as prototype software that can be implemented in stand alone tools and/or embedded in building energy management systems (BEMS).

The work performed in the annex is focussed on HVAC systems and their associated control systems, but takes into account, when appropriate, interactions with other systems and with the building shell.



The primary target groups for the tools developed in the annex are:

- Contractors and commissioning agents, who will use the tools to ensure that a building satisfies performance requirements at the time of hand-over;
- Property owners, who will use the tools to verify the performance of their building and/or to decide whether or not to acquire a building;
- Services companies, who will use the tools to improve the operation of a building and to prove that they have achieved this goal;
- BEMS manufacturers, who will implement the tools in their products.

The full CD-Rom with all the results and tools is available with this issue of AIR (see back cover). Alternatively a web version of the CD is available at *http://www.commissioning-hvac.org*.

How to obtain the AIVC publications?

The easiest way is through a free subscription

Subscribers receive:
- a personal access code to the protected part of the AIVC website and
- the quarterly newsletter of the AIVC (paper version)

Thanks to the access code, one can download all the AIVC publications:
- 11 AIVC Ventilation Information Papers
- 48 AIVC Technical notes
- 6 AIVC Guides
- 12 AIVC Annotated Bibliographies
- AIVC conference proceedings 1980 to 2004 - 1431 papers
- Air Information Review – All issues since 1979
- 3 AIVC contributed reports

The bibliographic database Airbase is also available on-line (about 17000 references from 1979 to present day). The access code gives access to 1800 full documents already linked to Airbase.

Since the March 2005 issue of the Air Information Review, all the documents linked to the newsletter are available on-line. They are only available with the access code.

The cost of the subscription for the year 2006 is given on the order form.

Subscribe now and take advantage of the temporary special offer!

Access codes for **Belgium, France, Germany, Greece, Norway, Netherlands and Switzerland** and for the **U.S.** engineering and research community (U.S. residents) can be delivered **free of charge** on request.

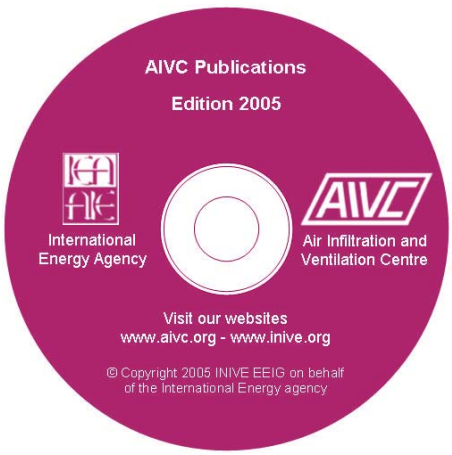
See http://www.aivc.org (How to subscribe?) for more information and on-line registration.

AIVC publications are also available on CD-Rom

A CD-Rom is available with all the guides (6), annotated bibliographies (12), ventilation information papers (10) and technical notes (47 - only some old superseded ones are not included) published by the AIVC between 1979 and 2005.

A CD-Rom is also available with the proceedings of the AIVC conferences from 1998 to 2004.

There is also another CD-Rom with the proceedings of the AIVC conference 2005.



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** CD-Roms have been developed for use in a Microsoft Windows environment for PC
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If the Annex 40 CD is not attached here,
you are missing accessing a lot of information.
See *http://www.commissioning-hvac.org* for the online version.