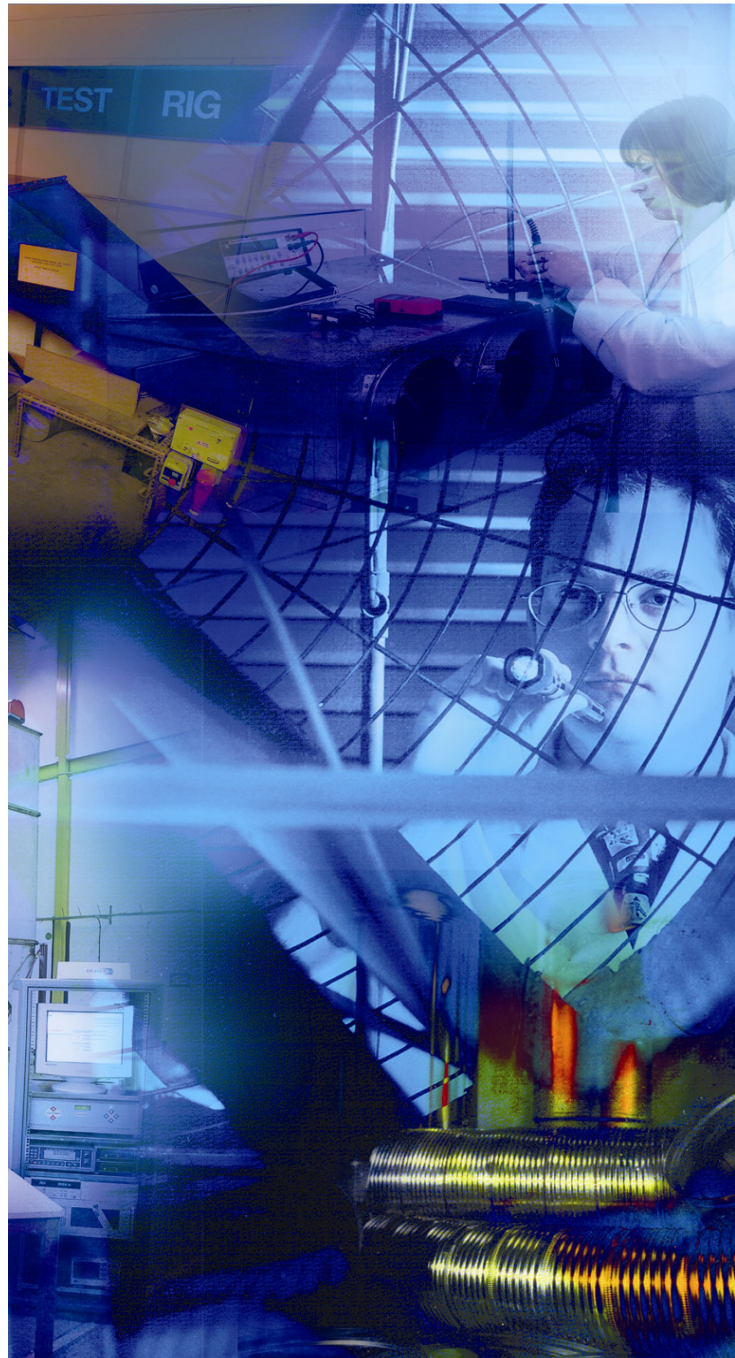


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2005



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International Building Services Abstracts

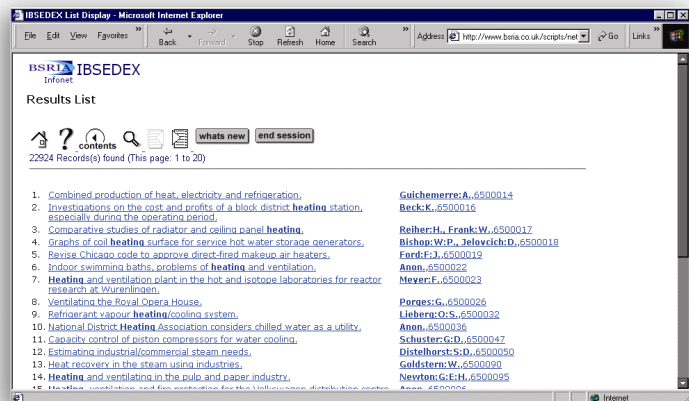
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Heating

2005-405

Stainless steel or aluminium?

Purchase S, Massey P

Heat. Plumb. Monthly, April 2005, No. 217, 54-55

Examines the benefits and disadvantages of stainless steel and aluminium heat exchangers. The differences in construction, performance and corrosion resistance are discussed particularly with reference to condensing boilers.

Heat pumps

2005-406

Field performance of HPWH preheating for water heating systems in schools

Dinse D R, Henderson H I, et al.

ASHRAE Trans., 2004, vol. 110, part 2, paper number NA-04-5-5, 690-695, 3 figs., 5 tabs., refs

Presents field-monitored performance data from a school where a heat pump water heater (HPWH) was installed with a storage tank to preheat water for a gas-fired hot water system with multiple recirculation loops.

2005-407

Numerical and experimental investigation of the operating characteristics of a wickless heat pipe

Riffat S B, Zhao X, et al.

Int. J. Amb. Energy, April 2005, vol.26, no.2, 93-105, 11 figs., 2 tabs., 20 refs

Describes existing numerical techniques used for simulating heat pipes, and the development of a simplified numerical model for normal wicked/wickless heat pipes based on the analysis of the current modelling methods.

Ventilation and air movement

2005-408

Wind-induced pressure at external surfaces of a high-rise residential building in Hong Kong

Burnett J., Bojic M.

Bldg. Environ., June 2005, vol. 40, no. 6, 765-777, 9 figs., 1 tab., 15 refs

Presents results of computational fluid dynamics simulations of pressure at external surfaces of a typical high-rise residential building in Hong Kong in order to comment on wind-driven ventilation inside the flats. The simulations used k-epsilon turbulence model, and two and three-dimensional model of the building. The results reveal that an optimal building orientation relative to the wind can be found; the windward flats possess the best cross-ventilation potential; in the investigated flats, location of windows and rooms is not adequate to maximize cross-ventilation potential and minimize spread of odour. The new building plan provides better cross-ventilation.

2005-409

Selecting high-volume low-speed fans

Caruso P D.

Plant Engng, February 2005, Vol. 59 No. 2, 72-73, 2 figs

Identifies the main performance criteria when selecting fans. High-volume low-speed (HVLS) fans have evolved out of a need for greater air movement as a solution for the ventilation and circulation of air in large spaces such as plants. High velocity air movement can be unpleasant and disruptive. HVLS fans are typically ten bladed, range in size from 8 to 24 feet in diameter and require only one horsepower. Originally designed to create an evaporative cooling effect over large areas, up to 20,000 sq feet.

2005-410

An approach for the evaluation of energy and cost efficiency of glass facades

Cetiner I., Ozkan E.

Energy and Bldgs., June 2005, vol. 37, no. 6, 673-684, 4 figs., 6 tabs., 9 refs

Investigates the appropriateness of double skin glass facades in a moderate climate, such as Istanbul, in terms of the energy and cost efficiency when compared to single skin glass facades. For this purpose, an approach is proposed to determine the efficient alternatives. It generates standard facade alternatives by considering the objectives, constraints and performance criteria, and to evaluate their energy and cost efficiency for both single and double skin glass facades.

2005-411

Natural ventilation in non-domestic buildings

Chartered Institution of Building Services Engineers CIBSE, Applications Manual AM 10: 2005, 64pp., figs., tabs., refs, ISBN 1903287561

This publication is a major revision of the Applications Manual first published in 1997. Provides detailed information on how to implement a decision to adopt natural ventilation, either as the sole servicing strategy for a building, or as an element in a mixed-mode design. Reviews strategic issues and how to develop a design strategy; ventilation components and how they should be integrated into an overall design philosophy; and concludes with design calculations.

2005-412

Experimental and numerical study of three-dimensional flow field in minienvironment

Cheng C-H., Hung K-S.

Energy and Bldgs., June 2005, vol. 37, no. 6, 579-586, 9 figs., 1 tab., 10 refs

This study is concerned with three-dimensional air flow field for improving the ventilation performance of a minienvironment in which toxic gas is produced during the coating process. To investigate the air flow field, measurement for the velocity distribution has been made by using a three-dimensional ultrasonic

anemometer, and numerical simulation using computational fluid dynamics (CFD) analysis tool has also been performed. Results of the numerical simulation based on the RNG k-epsilon turbulence model are confirmed by the experiments, and modifications in geometric configuration of the system are investigated. It is found that the numerical and experimental approaches used in this study lead to useful information of flow field and the ventilation performance in the minienvironment may be greatly improved by adjusting the location of the HEPA and modifying the shape of the inlet of the exhaust pipe.

2005-413

Validating and improving the Delta-Q duct leakage test

Dickerhoff D, Walker I, et al.
ASHRAE Trans., 2004, vol. 110, part 2, paper number NA-04-6-5, 741-751, 10 figs., 1 tab., refs

Reports on the laboratory evaluation of the Delta-Q test accuracy and the improvements made to derive air leakage flows from the measured airflow and pressure data.

2005-414

CFD modelling of an industrial air diffuser - predicting velocity and temperature in the near zone

Einberg G., Hagstrom K., et al.
Bldg. Environ., May 2005, vol. 40, no. 5, 601-615, 17 figs., 2 tabs., 22 refs

Describes experimental and modelling results from CFD simulation of an air diffuser for industrial spaces. The main objective is to validate a manufacturer model of the diffuser. In the air diffuser, the low velocity part is placed on top of a multi-cone diffuser in order to increase airflow rates and maximize the cooling capacity of a single diffuser unit. This kind of configuration should ensure appropriate performance of industrial air diffusers, which is discussed briefly. Illustrates the importance of a simulation model jointly with the manufacturer's product model and the grid layout near the ventilation device to achieve accurate results. The results from measurements are given in various forms: by visualising velocity and temperature measurement results, reporting velocity and temperature values at comparison points for more precise comparison with simulations and additionally smoke tests were performed to confirm the simulation and measurement results.

2005-415

Evaluation of two new duct leakage measurement methods in 51 homes

Francisco P W, Palmiter L, et al.
ASHRAE Trans., 2004, vol. 110, part 2, paper number NA-04-6-4, 727-740, 6 figs., 4 tabs., refs

Presents the results of a study on 51 homes to evaluate two new methods for estimating duct leakage relative to an independent benchmark and a method that is currently used.

2005-416

Effects of double glazed facade on energy consumption, thermal comfort and condensation for a typical office building in Singapore

Hien W. N., Liping W., et al.
Energy and Bldgs., June 2005, vol. 37, no. 6, 563-572, 20 figs., 4 tabs., 14 refs

Investigates the effects of double glazed facades with a ventilation system on the energy consumption, thermal comfort and condensation and compared to single glazed facade systems. TAS and CFD software were utilised to calculate energy consumption, thermal comfort and condensation for a single glazed facade building as well as a double glazed facade building. The simulation results showed double glazed facades with natural ventilation were able to minimise energy consumption as well as enhance the thermal comfort. Turning the mechanical fans on could also solve the condensation problem due to high humidity.

2005-417

The impact of system type on the ADPI and air-outlet devices

Kloostera L.
Heat. Pip. Air Condit. Engng., April 2005, vol. 77, no. 4, 24-25,27,29,31, 3 figs., 1 ref

Provides information on air diffusion performance index (ADPI) selection, recommended ranges, and the co-dependency of system type, and air outlet device type.

2005-418

ASHRAE Standard 152 and duct leaks in houses

Moderer M.
ASHRAE J., March 2005, vol. 47, no. 3, 28-30,32-34, 7 figs., 8 refs

Discusses data collected from houses around the USA and discusses the ANSI/ASHRAE Standard 152-2004: A method of test for determining the design and seasonal efficiencies of residential thermal distribution systems.

2005-419

Using certification data of cleanrooms to determine degradation and retrofit

Morrison S D.
ASHRAE Trans., 2004, vol. 110, part 2, paper number NA-04-7-1, 755-758, 4 figs., 1 tab., refs

Presents the history and a case study of a cleanroom to show some of the overlooked parameters that should be used in this type of evaluation, which are often overlooked by engineers.

2005-420

Comparative monitoring of natural, hybrid and mechanical ventilation systems in urban canyons

Niachou K., Hassid S., et al.

Energy and Bldgs., May 2005, vol. 37, no. 5, 503-513, 9 figs., 5 tabs., 11 refs

A number of field and indoor experimental procedures were performed in three typical apartment buildings located in two street canyons characterised by different urban features, during summer 2002 in Athens. Natural, mechanical and hybrid ventilation measurements were performed based on the tracer gas method on a circular basis within the 24-h period. The indoor exchange rates are estimated using both single and multi-zone approaches based on the mass balance of two tracer gases (N₂O and SF₆). Presents the results and a comparative analysis is made for the total air change rates estimated with the single and multi-zone methodologies.

2005-421

Wind-driven natural ventilation systems

Parker J, Teekaram A.

BSRIA Guide BG 2/2005, 72pp., 45 figs., 3 tabs., 6 refs, ISBN 0860226476

*Available only from BSRIA Bookshop
BSRIA members £15.00 (Non-members £30.00)*

Provides guidance on the design and application of wind-driven natural ventilation systems. Topics covered are: how wind-driven ventilation works; performance factors; siting and installation; meteorological data; automatic controls; test method; designing and sizing methodology; worked examples; commissioning; and computer modelling. The publication also includes eight case studies demonstrating the use of wind-driven natural ventilation systems.

2005-422

Quantitative multistage pressurizations in controlled and critical environments

Sun W.

ASHRAE Trans., 2004, vol. 110, part 2, paper number NA-04-7-2, 759-769, 4 figs., 3 tabs., refs

Explores a quantitative approach in the field of multistage pressurisations. Presents a simplified case study demonstrating the detailed procedures for arranging supply, return, and exhaust air streams for rooms under various required pressurisation levels.

2005-423

Air flow characteristics of a room with square cone diffusers

Sun Y., Smith T. F.

Bldg. Environ., May 2005, vol. 40, no. 5, 589-600, 13 figs., 2 tabs., 27 refs

A computational fluid dynamics model with radiant exchange between surfaces is developed to examine the air flow characteristics of a room with square cone diffusers. As an input to the full-scale 3-D room model,

a 2-D diffuser model that supplies direction and magnitude of air flow into the room is developed and evaluated using infrared visualization. The room air flow model is assessed using several previously documented problems with various geometries and boundary conditions. Simulations are conducted for heating and cooling of the room with one or two supply air diffusers. The results show that the offset and lips of the diffuser work together to determine the discharge air angles, which play an important role in determining the room air flow patterns. For a certain discharge angle in the heating case, the air flows along the ceiling. The results indicate that, for the same supply air flow, operating only a single diffuser initiates more mixing of the room air flow, which results in enhanced temperature uniformity compared to that for two diffusers. Radiant exchange between the exterior window and interior surfaces causes a significant change in the window temperature.

2005-424

Field observations of room air distribution performance in a high-performance home

Temple K A.

ASHRAE Trans., 2004, vol. 110, part 2, paper number NA-04-6-1, 699-708, 12 figs., 1 tab., refs

Reports on an evaluation of the field performance of room air distribution in two rooms of a high-performance (low heating and cooling load) home. States that the two rooms had similar exterior exposures but had different supply register locations. The impact of normal equipment cycling on the room air distribution performance was also investigated.

2005-425

Characterization of airflows at the exit registers using laser Doppler velocimetry (LDV)

Tutu N K, Krishna C R, et al.

ASHRAE Trans., 2004, vol. 110, part 2, paper number NA-04-6-2, 709-720, 12 figs., refs

Reports the results of fluid flow measurements carried out at the exit of sidewall registers. States that time-averaged mean velocity and turbulence profiles were measured at the exit plane of two sidewall registers. States that the data can be used as an input boundary condition in CFD codes to predict the velocity and temperature distribution in an enclosure supplied by the registers.

2005-426

Duct tape and sealant performance

Walker I., Sherman M.

ASHRAE J., February 2005, vol.47, no.2, 34-36,38,40-41, 6 figs., refs

Reports on the performance of duct tape and other sealant materials such as mastics and acrylic/butyl adhesives for the sealing of ducts.

2005-427

Numerical simulation of flow field for a whole centrifugal fan and analysis of the effects of blade inlet angle and impeller gap

Yu Z, Li S, et al.

HVACandR Res., ASHRAE, April 2005, vol. 11, no. 2, 263-283, 9 figs., 9 tabs., refs

Reports on the use of numerical simulation of the flow field for a whole centrifugal fan in order to study the interaction of three parts - inlet, impeller and scroll.

Air conditioning/ mechanical cooling

2005-428

Keeping track of your refrigerant use

Anon

ACR Today, April 2005, Vol. 16 No. 6, 16-17

Introduces the REFCOM refrigerant tracking database and the implications for businesses as a result of increased contractor and end-user responsibility. The EU has proposed tighter legislation for F-Gas regulations. A mandatory national refrigerant handling scheme will mean the end-user has legal liability in preventing leakage and ensuring proper recovery during servicing and replacement.

2005-429

Beyond HCFC22 for air conditioners - an outlook

Avinash P, Jabaraj D B, Mohan Lal D.

IRHACE J., January/February 2005, 20-23, 9 figs., 19 refs

Presents the results of a literature review on possible alternatives to HCFC22, and gives thermodynamic analyses for some alternative refrigerants such as HFC407C, propane, and propane/isobutane mixtures. Concludes that HFC407C could be a candidate refrigerant for retrofitting.

2005-430

Liquid cooling - Friend or foe

Beaty D L.

ASHRAE Trans., 2004, vol. 110, part 2, paper number NA-04-4-3, 643-652, 12 figs., refs

Examines the advantages and disadvantages of liquid cooling for dealing with high-density loads such as data centres.

2005-431

Experiences with a gas driven, desiccant assisted air conditioning system with geothermal energy for an office building

Casas W., Schmitz G.

Energy and Bldgs., May 2005, vol. 37, no. 5, 493-501, 12 figs., 14 refs

Within the scope of a research project, an investigation of a desiccant assisted air conditioning system was

carried out, and a demonstration plant was built in an office building in Hamburg, Germany. The HVAC system consists of a small CHP-plant, a desiccant assisted ventilation system and an earth energy system (borehole heat exchangers) for cooling instead of an electric driven compression chiller. The radiant floor heating system of the building is used for cooling. Presents measurement results and investigations of performance, energy demand and operating costs. It was found that considerable primary energy savings can be achieved (70%) using desiccant air conditioning with borehole heat exchangers. But even if electric chiller is used, savings of 30% in primary energy can be accomplished. Starting costs for the demonstration plant were not higher than for a conventional system, but running costs could be reduced drastically.

2005-432

A rational method for selection of coincident design dry- and wet-bulb temperatures for required system reliability

Chen T. Y., Yik F., et al.

Energy and Bldgs., June 2005, vol. 37, no. 6, 555-562, 7 figs., 4 tabs., 14 refs

Presents a rational method for the proper selection of coincident climate design conditions, which is based on the theory of probability. An average statistic risk level has been proved to be approximately equal to the annual percentile of coincident dry- and wet-bulb temperatures for HVAC systems whose thermal time constant is less than 1h. An algorithm is also developed to determine the contours of equal risk. Representative coincident design dry- and wet-bulb temperatures are obtained through statistic analysis of the 15 years of weather records in Hong Kong. These rationally derived outside design temperatures are compared with the coincident dry- and wet-bulb temperatures currently defined by ASHRAE and CIBSE.

2005-433

Electronic expansion valves

Dern C D.

ASHRAE J., March 2005, vol. 47, no. 3, p88, 90

Discusses the limitation of thermostatic expansion valves applied to refrigeration systems along with the advantages of electronic expansion valves.

2005-434

Measuring system efficiencies of liquid chiller and direct expansion

Dunn G N., Knight I P., et al.

ASHRAE J., February 2005, vol.47, no.2, 26-28,30-33, 6 figs., 6 tabs., refs

Presents research findings of a field monitoring study that determined the energy efficiency of fan coil and packaged direct expansion air-conditioning systems within UK office buildings.

2005-435

Design guidelines and performance study on a structured packed liquid desiccant air-conditioning system

Elsarrag E, Elmagzoub E, et al.
HVACandR Res., ASHRAE, April 2005, vol. 11, no. 2, 319-337, 11 figs., 1 tab., refs

Reports on an experimental investigation on the effect of different design parameters on the performance of a structured packed column using tri ethylene glycol. States that the performance was assessed in the comfort zone and reports design guidelines for humid and moderate climates.

2005-436

Air conditioners, liquid chilling packages and heat pumps with electrically driven compressors for space heating and cooling - Part 3: Test methods

European Standard
BSI, EN 14511-3:2004, 44pp, ISBN 0580438031

Specifies the test methods for the rating and performance of air and water-cooled air conditioners, liquid chilling packages, air-to-air, water-to-air and water-to-water heat pumps with electrically driven compressors when used for space heating and cooling. Also specifies the method of testing and reporting for heat recovery capacities, system reduced capacities and the capacity of individual indoor units of multisplit systems.

2005-437

Hermetic Refrigerant Pumps

Institute of Refrigeration
IOR., Guidance Note 14, 2005, 4pp, 621.564

Provides outline design guidance for hermetic refrigerant pumps. Discusses: reasons for poor pump performance, surge drum design, self venting of hermetic pumps, discharge pipe work, safety and electrical information, and trouble shooting guidance.

2005-438

Application of conduction transfer functions and periodic response factors in cooling load calculation procedures

Iu I, Fisher D E.
ASHRAE Trans., 2004, vol. 110, part 2, paper number NA-04-9-1, 829-841, 9 figs., 4 tabs., refs

Presents an overview of the conduction transfer function and periodic response factor methods of calculating conductive heat transfer. Different forms of the equations used in cooling load calculations are compared and contrasted.

2005-439

Thermal comfort and energy saving of a personalized PFCU air-conditioning system

Pan C-S., Chiang H-C., et al.
Energy and Bldgs., May 2005, vol. 37, no. 5, 443-449, 8 figs., 13 refs

Evaluates the performance of a personalised air-conditioning system, namely an innovative partition-type fan-coil unit (PFCU), against that of a central air-conditioning system, in terms of their thermal comfort provided and cooling energy consumed. For a cooling load given, it is found that the thermal comfort index (PMV) resulted from the personalised system is always lower than that from a central system. Also, the PMV-curve of the personalized system responds to the loads faster. The experimental results indicate that the personalised system, as compared to the central system, can shorten the operation time for the same level of thermal comfort required and save up to 45% of the energy consumed by the central system. As regards thermal comfort, the experiment with a thermal manikin substrates the PFCU design for its considerable reduction of the cold draught.

2005-440

Case credits and return air paths for supermarkets

Pitzer R S., Malone M.
ASHRAE J., February 2005, vol.47, no.2, 42-44,46-48, 3 figs., 4 tabs

Explains case credits relating to refrigerated display cases and how they affect HVAC system design. Also explains the impact of different return methods (in conjunction with appropriately applied case credits) can have on heating and cooling capacities and related energy use.

2005-441

Advanced velocity profile behind aircoolers using a streamer

Reichert E.
IRHACE J., January/February 2005, vol. 17, no. 1, 10-12, 9 figs

Describes the development of a streamer used in air coolers which can be mounted on the guard grille of the fan, and provides a higher air throw of the cooler. Shows improvements based on an advanced velocity profile behind the fan which turns centrifugal velocity components into axial direction. Presents measurements to find the optimal design of the streamer blades with no relevant aerodynamic losses.

2005-442

Dehumidification-system installation

Rowland C A, Wendel M J.
Heat. Pip. Air Condit. Engng., April 2005, vol. 77, no. 4, 50-51

Discusses installation issues associated with cooling and desiccant-dehumidification equipment and systems.

2005-443

Thermal profile of a high-density data center - Methodology to thermally characterize a data center

Schmidt R R.

ASHRAE Trans., 2004, vol. 110, part 2, paper number NA-04-4-2, 635-642, 11 figs., 1 tab., refs

Describes the thermal profile of a data centre and the measurement techniques employed to fully capture the detailed thermal environment. States that detailed measurements were taken of electronic equipment power usage, perforated floor tile airflow, cable cutout airflow, computer room air conditioning airflow, temperatures and power usage, and electronic equipment inlet air temperatures.

2005-444

Improved general correlation for subcooled boiling heat transfer during flow across tubes and tube bundles

Shah M M.

HVACandR Res., ASHRAE, April 2005, vol. 11, no. 2, 285-303, 4 figs., 3 tabs., refs

Compares an earlier published general correlation for subcooled boiling during flow across single tubes with 22 data sets for single tubes and 7 data sets for tube bundles. States that the correlation should be useful in the design of heat exchangers.

2005-445

Controlled clean operating room area

Shen J.

ASHRAE Trans., 2004, vol. 110, part 2, paper number NA-04-7-4, 776-780, 1 fig., refs

Introduces the general principles and recommended practice relating to two new Chinese Standards entitled "Construction standard for clean operating room in hospital" and the "Architectural code for clean operating room in hospital"

2005-446

Adsorption of water vapor by poly(styrene) sulfonic acid sodium salt - Isothermal and isobaric adsorption equilibria

Toribio F., Bellat J P., et al.

HVACandR Res., ASHRAE, April 2005, vol. 11, no. 2, 305-317, 8 figs., 2 tabs., refs

Characterises the water vapour adsorption properties of a completely sulphonated and mono-sulphonated poly(styrene) sulphonic acid sodium salt and determines the mechanism of adsorption on these materials. States that air-conditioning and dehumidifying systems implementing sorption on solids are of interest, particularly in humid climates, because they allow a reduction in thermal loads.

2005-447

Methods of laboratory testing remote mechanical-draft evaporative refrigerant condensers

USA, ASHRAE

ANSI/ASHRAE Standard 64-2005, 10pp

Prescribes methods of laboratory testing remote mechanical draught evaporative refrigerant condensers. Specifies procedures, apparatus and instrumentation to determine condenser capacity

2005-448

Methods of testing for rating positive displacement refrigerant compressors and condensing units

USA, ASHRAE

ANSI/ASHRAE, Standard 23, 2005, 11pp, refs

Provides methods of testing for rating single-stage positive displacement refrigerant compressors and condensing units that do not have liquid injection and are operated at subcritical (saturated) temperatures of the refrigerant.

2005-449

A novel superconductive food display cabinet

Wang F, Maidment G G., et al.

Proc. Inst. Refrig., Preprint, 8 April 2005, 15pp, 20 figs., 1 tab., refs

Highlights the deficiencies of the purely convective heat transfer mechanism used in modern food display cabinets. Proposes a novel heat transfer system that provides an integrated conductive/convective cooling mechanism.

2005-450

CPD collection: Load determination and equipment for VRF/VRV systems

Welch T.

Bldg. Serv. J. CIBSE, April 2005, Vol.27 No.4, 77-80, 4 figs

A cpd module which discusses cooling and heating load determination for buildings and the selection of equipment to meet these demands. For multiple, direct-refrigerant, reverse-cycle systems the initial selection is normally made for the cooling load and so the heating load will be a product of that selection.

2005-451

We're on deadline - Printing press heat gain is more (or less) than just motor load

Wessel D J.

ASHRAE Trans., 2004, vol. 110, part 2, paper number NA-04-9-3, 871-880, figs., tabs., refs

Discusses how the conversion of input power to heat for newspaper printing press plant design leads to grossly oversized cooling equipment.

2005-452

Advanced control of condensing temperature for enhancing the operating efficiency of air-cooled chillers

Yu F.W., Chan K.T.

Bldg. Environ., June 2005, vol. 40, no. 6, 727-737, 2 figs., 4 tabs., 20 refs

Considers a method to strategically lower the condensing temperature to enhance chiller efficiency at any outdoor temperature. An experiment was carried out on an air-cooled reciprocating chiller to confirm that an electronic expansion valve enables refrigerant to be adequately fed into the evaporator in all operating conditions, even when the condensing temperature falls to around 20 °C. By enhancing the heat rejection airflow of the condenser, both the condensing temperature and chiller power can decrease considerably with less fluctuation. According to the algorithm of staging condenser fans, this enhancement corresponds to resetting the set point of the condensing temperature based on any outdoor temperature. The potential and benefits of implementing this reset strategy are discussed.

Fire protection

2005-453

Components for smoke and heat control systems - Part 6: Specifications for cable systems

British Standards Institution

BSI, BS 7346-6:2005, 21pp, ISBN 0580455785

Defines the performance requirements for various types of cables and cable systems required to have resistance to fire. The cables (system) are used for circuits that have to maintain their circuit integrity for life safety, fire-fighting and property protection systems.

2005-454

Fire precautions in the design, construction and use of buildings - Part 5: Access and facilities for fire-fighting

British Standards Institution.

BSI, BS 5588-5:2004, 43pp, ISBN 058043804X

Provides recommendations and guidance on access and facilities for fire-fighting.

2005-455

PAS 79 Fire risk assessment - Guidance and a recommended methodology

British Standards Institution

BSI, Publicly Available Specification PAS 79:2005, 77pp, ISBN 0580447235

Provides a methodology and corresponding documentation for undertaking and recording the significant findings of fire risk assessments in buildings and parts of buildings to which the Workplace Fire Precautions Legislation applies.

2005-456

On carrying out atrium hot smoke tests

Chow W K.

Archit. Sci. Rev., March 2005, vol. 48, no. 1, 105-107, 2 figs., 8 refs

Key points to note in the local hot smoke test procedure in the Hong Kong "Hot Smoke Test on Smoke Extraction System" standard are outlined.

2005-457

Correlation equations on fire-induced air flow rates through doorway derived by large eddy simulation

Chow W. K., Zou G.W.

Bldg. Environ., July 2005, vol. 40, no. 7, 897-906, 8 figs., 2 tabs., 23 refs

Correlation equations of air flow rates induced by a fire with the ventilation factor were studied numerically with the Fire Dynamics Simulator version 3.01.

2005-458

FPA Design guide for the fire protection of buildings. Protected zone

Fire Protection Association

FPA, 2004, 8pp, 614.8

Concentrates on the concept of the protected zone in single storey buildings, that will assist in the design and construction of buildings which are less likely to catch fire. States the purpose of the protected zone and how to achieve the objective of fire resistance.

2005-459

Analog addressable fire alarm systems compared to conventional systems

Grones J, Foltz B.

Plant Engng, January 2005, Vol. 59 No. 1, 46-47, 2 figs

Describes the technical advances of analogue addressable fire alarm systems and their suitability for all sizes of application. With the ease of installation and maintenance they are becoming the choice of the future offering better safety and value.

2005-460

On designing horizontal ceiling vent in an atrium

Li J., Chow W. K.

J. Appl. Fire Sci., 2002-2003, Vol. 11, No. 3, 229-254, 10 figs., 1 tab., 28 refs

Reviews the design of static smoke exhaust systems for atria. Considers horizontal ceiling vents and outlines the physical principles. Demonstrates that the vent area is derived by taking buoyancy as the driving force. Considers the effects of wind on the performance of ceiling vents.

2005-461

Wireless protection

Perdell N.

Elect. Mech. Contractor, April 2005, vol. 104, No. 3, 49-50

Outlines the implications of wireless interconnect, mains-powered smoke alarms. BS 5839 Part 6 amended 2004 recognises the existence and makes special allowances for the new technology which basically removes the need to hard wire alarms together. The cost savings are in the labour, decoration and installation which more than compensate for the increased equipment cost particularly for existing buildings.

2005-462

A future without wires

Purdell N.

Facilities Mgmt., March 2005, vol. 12, no. 6, p22

Discusses the recent revision to BS 5839 Part 6 and its impact on the installation of mains-powered wireless smoke alarms.

2005-463

ESM: a building evacuation simulation model

Shen T-S.

Bldg. Environ., May 2005, vol. 40, no. 5, 671-680, 7 figs., 9 tabs., 8 refs

Evacuation simulation model (ESM) is a tool for simulating evacuation in building fires. This model can simulate the optimised evacuation, the phased evacuation and the "Evacuability", which is defined as the percentage of successful evacuees to the total occupants in the building evaluated. It is also capable of tracing the occupants in every compartment of the building at every time step, and describing the values of passages between compartments during simulation. ESM is a network model consisting of stocks connected by flows. The stocks stand for the compartments, such as rooms, corridors, hallways, stairs, landings and lobbies. The flows represent the passages between compartments. Using ESM, the evacuation safety of buildings can be evaluated.

2005-464

Intelligibility, the vital part of the voice alarm jigsaw

Voce N.

Fire Safety Engng., March 2005, vol. 12, no. 3, 20-22, 5 figs

Notes the need for installers to provide a level of intelligibility for voice alarms. Describes how intelligibility may be measured and when and where it may be measured. Notes the importance of obtaining a correct installation.

2005-465

A simple two-layer zone model on mechanical exhaust in an atrium

Yi L., Chow W. K., et al.

Bldg. Environ., July 2005, vol. 40, no. 7, 869-880, 10 figs., 27 refs

Develops a zone model based on a two-layer model for studying the effect of different positions of make-up air supply on the performance of a mechanical exhaust system in an atrium. Three scenarios of extraction with different relative positions of the air inlet are studied. Conservation of mass and energy are considered for each scenario to study the smoke filling process. Transient variations of smoke layer temperature and interface height will be predicted under different fire sizes, exhaust rates and make-up air conditions. Full-scale burning tests in an atrium were conducted to justify the predicted results. In addition, results predicted by this zone model will also be compared with those predicted by Computational Fluid Dynamics (CFD) with the software Fire Dynamics Simulator FDS version 3.1; and another zone model CFAST version 5.0.1.

Security

2005-466

Playing it by the rules

Brace M, Hurst R, et al.

Security Mgmt. Today, April 2005, 24-26, 28

Assesses the lessons to be learned from the Olympic Games in Athens that could be applied to the London 2012 bid. Athens was an unprecedented security operation that involved international support, including the use of American satellites to collect information on local security. The International Atomic Energy Authority participated in a joint action plan to ensure a high level of nuclear security at the 2004 Games with radiation detectors to pinpoint any illicit trafficking or malicious use of radioactive materials.

2005-467

Digital CCTV network solutions

Nicholson D, Bulkley A.

Plant Engng, February 2005, Vol. 59 No. 2, p75,81,83, 3 figs

Although analogue CCTV remains the dominant product in the security market, the advantages of digital cameras are becoming recognised by plant managers. Network access enables high quality video images to a wider audience. Security and facility management requirements can be integrated.

Electrical services

2005-468

Cables to BS 8436 - Protective device requirements

Anon

NICEIC Connections, Spring 2005, 31-32

Explains how foil screened cables conforming to BS 8436 are now among the types of cable that may be concealed in a wall or partition at a depth of less than 50 mm from the surfaces without being run in one of the prescribed zones. However special care has to be taken with the selection of the circuit protective device.

2005-469

Colour identification of conductors associated with lighting switching

Anon

NICEIC Connections, Spring 2005, 37-38, 3 figs

Explains the colour identification requirement of BS 7671 for multicore cables used for connecting switches in a lighting circuit and the additional marking that is necessary.

2005-470

Scottish Building Regulations

Anon

NICEIC Connections, Spring 2005, 5-6

Gives an overview of how the new system will work, particularly the two routes to follow to comply with the Building Regulations. In addition to some work which is exempt other work can be self-certified by suitably qualified and experience building professionals thus removing the need for detailed scrutiny of designs or inspections by local authorities. The new legislation will be implemented 1 May 2005.

2005-471

Cost model: Standby generation

Davis Langdon Mott Green Wall

Bldg. Serv. J. CIBSE, April 2005, Vol. 27 No. 4, 50-52, 2 figs, 1 tab

Provides an engineering cost model for standby generators and examines the rationale. Considers the technical, accommodation and cost implications of various performance options.

2005-472

Future-proofing cable containment systems

Davis S.

Elect. Times, April 2005, p32,34

Explains how cabling for the information technology sector can meet future as well as current requirements. The latest technology provides opportunities for electrical contractors to install cabling containment systems that not only simplify initial installation but also have provision for future system upgrades as cable technologies respond to network demand in the high-growth IT sector.

2005-473

What drives drive specifications?

Fore R. C.

Consul. Specif. Engr., March 2005, vol. 37, no. 3, 53-54

Discusses the issues to be taken into account when specifying variable frequency drives.

2005-474

Lightning protection for modern businesses

Forsey M.

Elect. Rev. March 2005, Vol. 238, No. 3, p20,22, 3 figs

Indicates the importance of protecting your business from the loss of power, lighting, or telephones. Uninterrupted functioning of electrical systems and data communications is critical and therefore protection from lightning needs careful consideration.

2005-475

Simple solutions with the latest software

Hughes R.

Elect. Rev., April 2005, Vol. 238 No. 4, p20,22

Reviews the choice of circuit protective devices available to designers of electrical distribution systems. Ranging from simple fuses and miniature circuit breakers to microprocessor devices as separate relays or incorporated into circuit breakers. Design software can assist in making the most appropriate selection.

2005-476

Testing times but relays race ahead

Marshall D.

Elect. Rev. March 2005, Vol. 238, No. 3, p24,26

Explains new developments in test equipment for protective relays. It recognises that microprocessor-based protection are used for new installations but many traditional types of relay are still in service. The new test equipment incorporates a novel design of power amplifier to offer versatility without the need for add-on modules.

2005-477

Design of electrical services for buildings

Rigby B.

Spon Press. 4th Ed., 2005, 319pp., figs., tabs, 696.6, ISBN 0415310830

Provides the basic principles of design for wiring methods, distribution schemes and protections for lighting and power installations. Alarms and standby power supplies are covered. Methods are described in detail and examples of calculations are given.

2005-478

The material facts on plastic and steel

Simmonds R.

Elect. Rev., April 2005, Vol. 238 No. 4, 18-19, 2 figs

As steel and plastic prices continue to rise, how cable management equipment makes are coping is examined.

One unlikely option is to move manufacturing to low wage countries in a bid to compensate for increases in material costs. The manufacturers forecast continuing price rises for the immediate future

2005-479

Complying with the new electrical safety regulations

Smith J.

Plant Engng, January 2005, Vol. 59 No. 1, 30-32, 3 figs

Outlines the key changes to the National Electric Code brought into force in January 2005. Control panels must now be labelled with short-circuit current ratings (SCCR). This will make it easier for inspectors to verify proper protection with the SCCR for components equal to or greater than the available short circuit current in the overall system.

2005-480

Swimming pools. No need to make waves

Ware J.

Wiring Matters, Spring 2005, 14-19

Provides guidance on the wiring regulations for swimming pools. Concentrates on shock protection zones, supplementary equipotential bonding, protective multiple earthing, switches and controls, floor heating.

2005-481

Heat loss from electrical and control equipment in industrial plants: Part 1 - Methods and scope

White W N, Pahwa A, et al.

ASHRAE Trans., 2004, vol. 110, part 2, paper number NA-04-9-2a (RP-1104), 842-851, 4 figs., 1 tab., refs

Reports on an effort to provide updated information on heat losses by various electric power devices and equipment found in buildings and industrial plants. Outlines the methodology and scope of the work

2005-482

Heat loss from electrical and control equipment in industrial plants: Part 2 - Results and comparisons

White W N, Pahwa A, et al.

ASHRAE Trans., 2004, vol. 110, part 2, paper number NA-04-9-2b (RP-1104), 852-870, 8 figs., 10 tabs., refs

Reports on an effort to provide updated information on heat losses by various electric power devices found in buildings and industrial plants. The information is organised by equipment type, and practical guidance on using this information to compute losses under different conditions is provided.

Lighting, daylighting

2005-483

Emergency lighting design guide. Lighting Guide 12

Chartered Institution of Building Services Engineers CIBSE, 2004, 56pp. refs. Supersedes Technical Memoranda TM 12, 1986, ISBN 1903287510

Gives advice on the design of emergency escape lighting schemes and installations. It covers the relevant regulations, standards and requirements. It outlines available equipment and materials and gives guidance on their selection, installation, operation and maintenance.

2005-484

Calculation of the vertical daylight factor on window facades in a dense urban environment

Cheung H D., Chung T M.

Archit. Sci. Rev., March 2005, vol. 48, no. 1, 81-91, 13 figs., 1 tab., 14 refs

Presents a calculation method for the estimation of vertical daylight factor (VDF) in a densely-packed urban environment with complicated and uneven skies. States that the method predicts the vertical daylight factor with results compared to those simulated by RADIANCE to a satisfactory degree of accuracy.

2005-485

The power demand of discharge lamps used in public lighting

Fotios S, Boyce P, et al.

Ltg. J., March/April 2005, vol. 70, no. 2, 32-36, 3 figs, 2 tabs, 6 refs

Reports upon the energy losses from discharge lamp control gear used for street lighting. The determination of average operating performance is critical as with un-metered supplies the performance is a direct measure of the charges imposed by the electrical supply companies.

2005-486

Crafting a longer lasting lamp

Hooker J.

Ltg. Equip. News, April 2005, p15

Describes how Philips have improved the life of fluorescent lamps by introducing design changes and new production techniques. Called X-technology the lamps can be identified by X shaped lamp caps. Included in the changes is an increase to the phosphor coating weight to ensure good lumen maintenance over the increased life.

2005-487

A design tool for predicting the performances of light pipes

Jenkins D., Muneer T., et al.

Energy and Bldgs., May 2005, vol. 37, no. 5, 485-492, 9 figs., 8 refs

Presents a model that uses the cosine law of illuminance to describe the distribution of light from the light pipe diffuser as well as takes into account pipe elbow pieces or bends. The resulting illuminance model can be described as a quartic cosine model. By producing a "luxplot" prediction for any given light pipe application, it is possible to maximise the potential of these daylight providers and design their configuration to suit any given need. As part of this study, wide-ranging illuminance and luminous flux data were collected both for the formulation of this model (as the formula is semi-empirical) and its validation.

2005-488

An analysis of measured and simulated daylight illuminance and lighting savings in a daylit corridor

Li D. H. W., Tsang E. K. W.

Bldg. Environ., July 2005, vol. 40, no. 7, 973-982, 8 figs., 4 tabs., 31 refs

Presents a study of the daylight coefficient (DC) approach using RADIANCE lighting software in simulating the indoor daylight illuminance of a corridor. The interior daylight illuminance data measured in the corridor were compared with the simulated results based on the computer software. It was found that the DC approach could give satisfactory results especially for the sun-shaded surface and sun-facing surface receiving a large amount of direct sunlight. Further, the daylight illuminance detected by the photosensor was also simulated in conjunction with measured daylight illuminance, dimming ratio and electric lighting power to predict the lighting energy savings. The findings suggested that the measured and predicted data showed a good agreement when large electric lighting savings resulted. The probable reasons causing the discrepancies were discussed.

2005-489

City light artists: working in the dark

Wallace P.

Ltg., April 2005, Vol. 25 No. 2, 10-12, 14-16, 18-23

Describes the philosophy of exterior lighting design in relation to its contribution to civic identity on an international scale. How does the role of architecture and the illuminated building impact on modern urban society? The article concludes with individual explanations from six eminent designers as to how they approached specific projects.

2005-490

The race towards greater innovation

Wallace P.

Ltg., April 2005, Vol. 25 No. 2, 28-31, 34-35

Reviews the progress of a group of Australian lighting practitioners in establishing a centre of learning that would

study innovation and market demand in the lighting industry. Its approach is supported by the Australian lighting industry and the views of individual companies as to their future strategy and investment are reported.

2005-491

The principle of light beam image splitting

Zsohar P.

Ltg. J., March/April 2005, vol. 70, no. 2, 23, 25-26

Explains the benefits and operation of light beam image splitting and argues for its potential to bring better lighting to our urban centres. Faceted reflectors control light distribution and the luminance reaching the eye thus reducing glare. Originally developed for specific situations such as airport aprons where pilots' eyes are adapted to dark conditions, the same technique can now be applied for more conventional exterior locations such as pedestrian areas and open car parks.

Controls and instrumentation

2005-492

Methods for in-service diagnostics of motor-operated valves

Bowen D L, Lyon R H.

Maintenance and Asset Mgmt., February 2005, Vol. 19, No. 4, 13-20, 5 figs., 3 refs

Describes a portable system for non-invasive, in-service monitoring of motor operated valves. This system uses a combination of electrical voltage and current measured at the motor control centre to determine the instantaneous motor torque, and vibration measured on the casing to determine the position of the valve.

2005-493

Make savings with long-distance drives

Daniels M.

Elect. Rev., March 2005, Vol. 238, No. 3, 18-19

Explains the advantages of networking drives and controllers and how systems, such as Ethernet TCP/IP, originally for office applications can be suited to the factory floor.

2005-494

Building automation and control systems (BACS) - Part 3: Functions

European Standard, International Standards

Organisation

BSI, EN ISO 16484-3:2005, 82pp, ISBN 0580453871

Specifies the requirements for the overall functionality and engineering services to achieve building automation and control systems. Defines terms and provides a sample template for documentation of plant/application specific functions.

2005-495

Experimental analysis of model-based predictive optimal control for active and passive building thermal storage inventory

Henze G P, Kalz D E, et al.
HVACandR Res., ASHRAE, April 2005, vol. 11, no. 2, 189-213, 12 figs., 3 tabs., refs

Demonstrates model-based predictive optimal control of active and passive building thermal storage inventory in a test facility in real time using time-of-use differentiated electricity prices without demand charges.

2005-496

Tapping into remote building intelligence

Lash T.
ASHRAE J., March 2005, vol. 47, no. 3, 62-64,66,68-69, 2 figs

Discusses the benefits of obtaining and analysing performance related data using distributed intelligence control and monitoring systems.

2005-497

Adaptive occupancy-based lighting control via Grey prediction

Leephakpreeda T.
Bldg. Environ., July 2005, vol. 40, no. 7, 881-886, 6 figs., 2 tabs., 7 refs

Describes adaptive occupancy-based lighting control via Grey prediction. Determining the timing of automatically switching off the lights after the occupied space is vacated is quite challenging when trade-off between occupant's comfort and energy saving is concerned. The occupancy behaviour is modelled by the well-known Pareto distribution for determining such delay time based on probability of no false off-switch. Since the occupancy behaviour for determining the delay time at controlling time cannot be known in advance and dynamically changes, Grey prediction model is thus applied in order to determine the delay time according to the knowledge of that occupant's activity in the past. The real-time control implementation to lighting an office room is used to illustrate the viability of the proposed methodology in practical use for energy saving.

2005-498

Ventilation control strategy using the supply CO₂ concentration setpoint

Nassif N, Kaji S, et al.
HVACandR Res., ASHRAE, April 2005, vol. 11, no. 2, 239-262, 11 figs., 2 tabs., refs

Proposes a new ventilation control strategy applied to multiple spaces subject to variable occupancy. The strategy specified for real-time, online ventilation control takes advantage of uninitiated air from some over ventilated spaces to be used as fresh outdoor air in order to reduce system energy use while maintaining the indoor air quality in each space.

2005-499

Simplifying contemporary HVAC piping

Rishel J B.
ASHRAE J., February 2005, vol.47, no.2, 16-18,20,22,24-25, 10 figs., refs

Discusses the use and advantages of digital control and variable speed pumping for the control of water flow in chilled and hot water distribution systems.

2005-500

Optimal control of building HVAC&R systems using complete simulation-based sequential quadratic programming (CSB-SQP)

Sun J., Reddy A.
Bldg. Environ., May 2005, vol. 40, no. 5, 657-669, 11 figs., 2 tabs., 18 refs

Presents a general and systematic methodology, termed complete simulation-based sequential quadratic programming (CSB-SQP), for determining the optimal control of building HVAC&R systems. This approach allows the coupling of a detailed simulation program with an efficient optimisation method, namely the sequential quadratic programming (SQP) algorithm. This approach allows the use of accurate component models of the system as against empirical models as currently used, while providing efficient optimal solutions to be determined. Develops the mathematical basis of the methodology and applies it to a simple cooling plant system to illustrate the accuracy, efficiency and robustness of this method. The issue of implementing such an optimisation under real-time control is also discussed.

2005-501

An optimization-based approach for facility energy management with uncertainties

Xu J, Luh P B, et al.
HVACandR Res., ASHRAE, April 2005, vol. 11, no. 2, 215-237, 18 figs., 9 tabs., refs

Presents an optimisation-based methodology to control HVAC units in stochastic settings. A DDC-based dynamic building control that decides HVAC set points for each time interval is used. States that the method was tested and implemented for single-zone HVAC systems, but it can be extended to multi-zone systems by assuming that the multi-zones have same room temperature set points.

Maintenance and facilities management

2005-502

Professional development

Anon

Essentialfm Report 46, April 2005, 24pp

A series of nine articles dealing with professional development for facilities managers. Covers the expanding world of facilities, courses and qualifications, salaries and recruitment. There are two case studies describing external and internal training.

2005-503

Managing your building services

Armstrong J, Saville A.

CIBSE, Knowledge Series, 2005, 30pp., refs, ISBN 1903287553

Provides an introduction to the maintenance of building services. Outlines the commonly found building services and provides an overview of their primary maintenance requirements. Introduces the different planned maintenance approaches that can be used for services, explaining common terminology and different approaches to a maintenance policy. Considers comfort criteria and energy consumption, guidance on the selection and appointment of professional maintenance advisors and contractors, and monitoring and auditing building services performance. Presents an overview of relevant legislation and regulations.

2005-504

Maintaining cooling towers

Babock G A.

ASHRAE J., March 2005, vol. 47, no. 3, 46-51

Discusses routine maintenance and suggests ways to improve the performance of cooling towers.

2005-505

Ahead of the game

Chisholm A.

Maintenance and Asset Mgmt., February 2005, Vol. 19, No. 4, 5-12, 8 figs

Describes the steps taken to transform the maintenance culture at a manufacturing plant. Changing from largely reactive to proactive with a rationalised planned maintenance programme required emphasis on human factors, fostering of workforce skills, commitment and communication.

2005-506

Multi-fault detection and diagnosis of HVAC systems: an experimental study

Cho S-H., Hong Y-J., et al.

Int. J. Energy Res., May 2005, vol. 29, no. 6, 471-483, 4 figs., 9 tabs., refs

The objective of this study is to detect faults due to multiple element failures in HVAC systems occurring concurrently. To classify and detect single as well as multiple faults, measurements were made of supply air

temperature, OA-damper position, supply fan pressure, indoor temperature and air flow rate in a variable air volume heating ventilating and air conditioning test facility. Experimental results show that three types of patterns emerge in the analysis of multi-fault problems. To solve the multi-fault problem, a strategy based on pattern classification and the use of residual ratios is presented. It is shown that the residual ratio can be used to diagnose and accurately identify and detect multiple-faults occurring in HVAC systems.

2005-507

Value driven maintenance. New faith in maintenance

Haarman M., Delahay G.

Mainnovation, 2004, 208pp, 658.58, ISBN 9080827029

Introduces the basic principles of value driven maintenance (VDM) with a step-by-step design plan. Describes ten maintenance competences that make up a maintenance organisation according to VDM. Examines Enterprise Asset Management (EAM) systems and their role as a measurement and improvement tool within VDM.

2005-508

Methods for fault detection, diagnostics, and prognostics for building systems - A review, part II

Katipamula S, Brambley M R.

HVACandR Res., ASHRAE, April 2005, vol. 11, no. 2, 169-187, 4 tabs., refs

Discusses research and applications specific to the fields of building services and provides a brief discussion of the current state of diagnostics in buildings. Also discusses the future of automated diagnostics in buildings.

2005-509

Maintain concrete properly to preserve its strength

Kline T.

Plant Engng, March 2005, Vol. 59 No. 3, 81-84, 4 figs

Sets out a planned approach to maintaining concrete by understanding the process of degradation. Both natural and man made forces are involved and the latter are controllable. Knowledge has progressed since many structures were built and thus repair strategies and construction techniques are now available which may prevent costly repairs.

2005-510

Downtime priorities, jack-knife diagrams, and the business cycle

Knights P F.

Maintenance and Asset Mgmt., February 2005, Vol. 19, No. 4, 21-28, 11 figs, 2 tabs, 4 refs

Suggests an alternative for analysing equipment downtime using logarithmic scatterplots in place of the traditional Pareto histogram. The ranking scheme of the Pareto histograms is preserved but additional information is provided regarding failure frequencies and the mean time to restore service.

2005-511

Integrated support services

Palmer G., Whittaker B., et al.

Essentialfm report 45, March 2005, 20pp

A series of eight articles dealing with the arguments for greater integration of support services. Examines the legal challenges, the problems of corporate structures and how to converge strategic planning. Changes in technology impact on ways of working and the role of human resources.

2005-512

Improving system performance through benchmarking

Watson J.J.

ASHRAE J., March 2005, vol. 47, no. 3, 56-58,60-61, 2 figs

Discusses the creation of a database of HVAC installed costs and maintenance costs that ultimately will be accessible through an interactive Web site. States that the availability of real-time data will help improve the accuracy and reliability of decisions based on life-cycle evaluations.

2005-513

Owners and O&M

Webster W.

ASHRAE J., March 2005, vol. 47, no. 3, 70-72,74-75, 10 figs

Demonstrates the importance and value of a technically trained "owner" who fills the role of facilities engineer, and provides direction to operations and maintenance staff, and service contractors.

2005-514

Retrocommissioning

Wiggins S.R.

ASHRAE J., March 2005, vol. 47, no. 3, 76-78, 1 tab

Discusses the application and benefits of retrocommissioning - the process by which owners ensure that their buildings and systems are optimised to perform interactively to meet current operational needs as closely as possible.

2005-515

A lifetime of value

Williams B.

Facilities Mgmt., April 2005, vol. 12, no. 7, 15-17, 3 figs

Discusses the meaning of life (applied to life cycle costs) in a facilities context and asks whether cutting back on quality is always a bad investment decision.

2005-516

People and property - a lasting marriage

Wustemann L.

Facilities Mgmt., April 2005, vol. 12, no. 7, 10-11

Reports on discussions with a group of managers whose titles embrace both facilities management and human resources to see if combining the two roles is likely to take off.

Thermal storage

2005-517

Modeling and comparative thermal performance of ground air collector and earth air heat exchanger for heating of greenhouse

Ghosal M. K., Tiwari G. N., et al.

Energy and Bldgs., June 2005, vol. 37, no. 6, 613-621, 7 figs., 1 tab., 15 refs

The potential of using the stored thermal energy of ground for space heating has been investigated with the help of two buried pipe systems, i.e., ground air collector and earth air heat exchanger, integrated with the greenhouse located in the premises of Indian Institute of Technology, Delhi, India. The total length of the buried pipes in both the arrangements was kept the same for making a comparative study. A complete numerical model has been developed to predict and compare their thermal performance for choosing a suitable heating method in the composite climate of India. Experiments were conducted extensively during the winter period from November 2002 to March 2003, but the model was validated against the clear and sunny days. Performance of these two arrangements was compared in terms of thermal load levelling and total heating potential.

Energy use

2005-518

Heating energy consumption and resulting environmental impact of European apartment buildings

Balaras C. A., Droutsa K., et al.

Energy and Bldgs., May 2005, vol. 37, no. 5, 429-442, 10 figs., 38 refs

Data on heating energy consumption were collected during the audits of 193 European residential buildings in five countries (Denmark, France, Hellas, Poland, and Switzerland). The available data were analysed in order to assess the influence of envelope thermal insulation, age and condition of heating system, on the heating energy consumption and the resulting environmental impact.

2005-519

Advanced energy design guide for small office buildings

Colliver D, Jarnagin R E

ASHRAE J., March 2005, vol. 47, no. 3, 22-27, 5 figs

Discusses the contents of an ASHRAE publication titled - Advanced energy design guide for small office buildings. States that the guide is the first in a series of documents designed to provide recommendations for going beyond the minimum requirements of US code-intended standards.

2005-520

Effect of moisture on hygrothermal and energy performance of a building with cellular concrete walls in climatic conditions of Poland

Gawin D J, Koniorczyk M, et al.
ASHRAE Trans., 2004, vol. 110, part 2, paper number NA-04-8-2, 795-803, 9 figs., 4 tabs., refs

Quantifies the effect of initial moisture on the hygrothermal and energy performance of autoclaved aerated concrete used in a residential house located in Poland.

2005-521

Automatic monitoring and targeting at Whitbread plc

Higgins D.
Facilities Mgmt., March 2005, vol. 12, no. 6, 14-15

Discusses the use of automatic monitoring and targeting techniques to reduce energy and water consumption.

2005-522

Hot water use in a high school cafeteria

Hiller C C, Miller J, et al.
ASHRAE Trans., 2004, vol. 110, part 2, paper number NA-04-5-1, 655-663, 5 figs., 2 tabs., refs

Reports on field test data for hot water and water heating energy use of a US high school cafeteria kitchen.

2005-523

EUBART - Intelligent buildings. Final Technical Report

Islenet
European Commission, 2004, 21pp, 620.92:697-5

Presents the results of post-occupancy evaluations of two library buildings built to demonstrate the technical viability and the economic advantages of an integrated approach to improving energy efficiency in the built environment. Describes the two buildings and their energy efficient systems for lighting, ventilation, space heating and cooling, together with integrated renewable energy systems (PVs and sea-water based heating and cooling). States that the project buildings showed reductions in primary consumption and carbon dioxide emissions of 50-60% in comparison with typical local standards.

2005-524

A simplified method to estimate energy savings of artificial lighting use from daylighting

Krarti M., Erickson P. M., et al.
Bldg. Environ., June 2005, vol. 40, no. 6, 747-754, 11 figs., 5 tabs., 13 refs

Provides a simplified analysis method to evaluate the potential of daylighting to save energy associated with electric lighting use. Specifically, impacts on daylighting performance are investigated for several combinations of building geometry, window opening size, and glazing type for four geographical locations in the United States. Four building geometries with various window-to-floor

areas, along with different glazing types have been analysed. A model is proposed to estimate lighting energy savings given perimeter area, window area, and window type. Verification and validation of the model's predictions are demonstrated using results from building energy simulation as well as experimental data.

2005-525

Cost-benefit analysis and emission reduction of lighting retrofits in residential sector

Mahlia T. M. I., Said M. F. M., et al.
Energy and Bldgs., June 2005, vol. 37, no. 6, 573-578, 8 figs., 8 tabs., 10 refs

This study projects electricity savings, cost-benefit analysis and emission reduction of lighting retrofits in the Malaysian residential sector. The cost-benefit is determined as a function of energy savings due to retrofit of more efficient lighting system. The energy savings were calculated based on 25, 50 and 75% of potential retrofits of inefficient lighting in residential sector. The study found that, this strategy saved a significant amount of energy and consumers money. However, an effort to create energy efficiency awareness among consumers and subsidies for efficient lighting should be identified, because this efficient lighting is quite expensive in Malaysia

2005-526

Dynamic thermal CFD simulation of a typical office by efficient transient solution methods

Somarathne S., Seymour M., et al.
Bldg. Environ., July 2005, vol. 40, no. 7, 885-896, 5 figs., 5 tabs., 19 refs

Describes the evolution and application of an efficient dynamic thermal modelling (DTM) procedure, developed within computational fluid dynamics (CFD). The results of a case study to simulate the dynamic thermal conditions within a typical office space using the novel DTM-CFD procedure are reported. Investigates the ability to account for the time-varying thermal response of building fabrics to internal and external ambient conditions and the consequential effect on the air inside the enclosure. States that the DTM-CFD procedure provides the potential for solving the problem of generating large quantities of data, whilst effectively and accurately modelling heat transfer through the building fabric and internal air simultaneously using CFD alone. An assessment of the performance of the DTM-CFD procedure was made through inter-model comparisons with fully transient CFD solutions.

2005-527

Using benchmarking to identify energy efficiency opportunity in cleanrooms: The Labs 21 approach

Tschudi W, Rumsey P.
ASHRAE Trans., 2004, vol. 110, part 2, paper number NA-04-7-3, 770-775, 6 figs., 1 tab., refs

Reports on the development of energy benchmarking protocols for use in high-tech buildings, with the

objective of improving energy efficiency. Also provides suggestions for the use of benchmark data to improve energy efficiency.

2005-528

A method of formulating energy load profile for domestic buildings in the UK

Yao R., Steemers K.

Energy and Bldgs., June 2005, vol. 37, no. 6, 663-671, 11 figs., 5 tabs., 11 refs

Presents a simple method of formulating load profile (SMLP) for UK domestic buildings. Domestic space heating load profile for different types of houses have been produced using a thermal dynamic model which has been developed using thermal resistant network method. The daily breakdown energy demand load profile of appliance, domestic hot water and space heating can be predicted using this method. The method can produce a daily load profile from an individual house to an urban community. It is suitable to be used at renewable energy system strategic design stage.

Information technology and computer simulation

2005-529

On campus

Anon

Elect. Mech. Contractor, April 2005, vol. 104, No. 3, 35-36

Explains how University College London is adding hi-tech facilities such as virtual reality and advance networking infrastructures. Planning to meet future demands is a key element of the installation.

2005-530

Prediction of hourly energy consumption in buildings based on a feedback artificial neural network

Gonzalez P A., Zamarreno J M.

Energy and Bldgs., June 2005, vol. 37, no. 6, 595-601, 6 figs., 4 tabs., 22 refs

An approach for short-term load prediction in buildings is shown. The method is based on a special kind of artificial neural network (ANN), which feeds back a part of its outputs. This ANN is trained by means of a hybrid algorithm. The new system uses current and forecasted values of temperature, the current load and the hour and the day as inputs. The performance of this predictor was evaluated using real data and results from two ASHRAE databases. The achieved results demonstrate the high precision reached with this system.

2005-531

The inclusive workplace

Ross P.

Facilities Mgmt., April 2005, vol. 12, no. 7, 18-19

Discusses the rise of wireless communication devices and how internet hotspots and visitor area networks will affect the office of the future.

2005-532

Building design optimization using a convergent pattern search algorithm with adaptive precision simulations

Wetter M., Polak E.

Energy and Bldgs., June 2005, vol. 37, no. 6, 603-612, 3 figs., 1 tab., 30 refs

Proposes a simulation-precision control algorithm that can be used with a family of derivative free optimisation algorithms to solve optimisation problems in which the cost function is defined through the solutions of a coupled system of differential algebraic equations (DAEs). Presents a new building energy and daylighting simulation program, which constructs approximations to the cost function that converge uniformly on bounded sets to a smooth function as precision is increased. Proves that for this simulation program, these optimisation algorithms construct sequences of iterates with stationary accumulation points. Presents numerical experiments in which the annual energy consumption of an office building for lighting, cooling and heating are minimised. In these examples, the precision control algorithm reduces the computation time up to a factor of four.

2005-533

Hot designs for cool data

Zissman M.

Consul. Specif. Engr. April 2005, vol. 37, no. 4, 38-40,42,44

Discusses the use of modular systems for housing and providing utilities for data servers. States that modular service racks are fully equipped with power and cooling infrastructure to maintain critical environments and ensure reliable power.

Occupant comfort, health and air quality

2005-534

Indoor air - Part 1: General aspects of sampling strategy

British Standards Institution. International Standards Organisation

BSI, BS ISO 16000-1:2004, 26pp, ISBN 058045391X

Provides guidance for the planning of indoor pollution monitoring. Suggests how to develop a suitable sampling strategy.

2005-535

Indoor air - Part 2: Sampling strategy for formaldehyde

British Standards Institution. International Standards Organisation
BSI, BS ISO 16000-2:2004, 19pp, ISBN 0580453901

Describes basic aspects to be considered when working out a sampling strategy for the analysis of formaldehyde in indoor air.

2005-536

Indoor air - Part 4: Determination of formaldehyde - Diffusive sampling method

British Standards Institution. International Standards Organisation
BSI, BS ISO 16000-4:2004, 13pp, ISBN 0580454053

Specifies a diffusive sampler/solvent desorption/high performance liquid chromatography method for the determination of formaldehyde in indoor air.

2005-537

Human exposure chamber for known formaldehyde levels: Generation and validation

Casset A, Marchand C., et al.
Indoor Built Environ., April 2005, vol. 14, no. 2, 173-182, 4 figs., 2 tabs., 40 refs

Reports on the development of an exposure chamber to study effects of low controlled concentrations of formaldehyde.

2005-538

Exposure assessment for formaldehyde and acetaldehyde in the workplace

Cavalcante R M, Seyffert B H et al.
Indoor Built Environ., April 2005, vol. 14, no. 2, 165-172, 3 figs., 4 tabs., 31 refs

Reports on the appraisal of personal exposure and possible cancer risk from formaldehyde and acetaldehyde in eight work places at a university in Brazil.

2005-539

Meeting critical control needs

Gaskell K.
Health Estate J., April 2005, Vol. 59, No. 4, 32-33, 2 figs

Describes the technology that ensures relative humidity (RH) is predictable and stable in the hospital environment. In particular the burns unit requires RH to be maintained at 60% with fluctuation of no more 1% to ensure successful skin grafts. The solution was the use of electric element humidifiers with steam output.

2005-540

Ensuring continuity in hot water delivery

Gummers A J.
Health Estate J., April 2005, Vol. 59, No. 4, 49-50, 3 figs

Questions the purchasing standard DO8 of NHS Estates for thermostatic mixing valves. Safe hot water delivery for hospitals needs to consider people at high risk of scalding. At the same time water has to be stored and circulated at a suitable high temperature to preclude the growth of legionella bacteria.

2005-541

Emissions from thermal insulations - part 2: evaluation of emissions from organic and inorganic insulations

Koivula M., H-R. Kymalainen H-R., et al.
Bldg. Environ., June 2005, vol. 40, no. 6, 803-814, 2 figs., 6 tabs., 37 refs

Examines microbial, chemical and physical (particle) emissions from organic and inorganic thermal insulation materials with a multifunctional apparatus developed for this purpose. In addition, basic quality parameters of the materials, including microbial content, ignition residue and density, were determined. The particular focus of the study was on bast fibrous insulations made of bast fibres of flax, linseed and hemp. States that in the case of insulations, particularly those made of organic fibres, it is essential to follow good manufacturing practices and to keep the insulations in a dry place throughout the manufacturing and building process in order to minimise hygienic risks in insulation materials.

2005-542

Microbial volatile organic compounds as indicators of fungi. Can an electronic nose detect fungi in indoor environments?

Kuske M., Romain A-C., et al.
Bldg. Environ., June 2005, vol. 40, no. 6, 824-831, 1 fig., 1 tab., 63 refs

Presents a review of several studies on the detection of microbial volatile organic compounds (MVOCs) considered as indicators of fungal contamination. As fungi produce specific profiles, or fingerprints of volatile compounds, the electronic nose technology is a very promising opportunity for rapid and non costly detection of fungi in buildings. E-noses are able to distinguish between mouldy and non-mouldy samples, and also to recognise certain species of fungi. However, two limiting factors may appear decisive for employment of electronic noses in indoor fungi detection: low concentrations of MVOCs and presence of interfering substances in indoor environments.

2005-543

Productivity in buildings: the "killer" variables

Leaman A, Bordass B.

EcoLibrium, April 2005, vol. 4, no. 3, 16-20, 2 figs., 21 refs

Presents an update on an earlier paper first published in 1997. Notes the problems of measuring and reporting on human productivity in workplaces. Argues the case for "real world research" as opposed to laboratory experiments. Defines productivity and the pros and cons of subjective perceived productivity. Lists five "killer" variables that have a critical influence on the overall behaviour of a system, and each of these will be examined in future articles.

2005-544

New type of fresh air processor with liquid desiccant total heat recovery

Li Z., Liu X., et al

Energy and Bldgs., June 2005, vol. 37, no. 6, 587-593, 7 figs., 3 tabs., 13 refs

Proposes a liquid desiccant total heat exchanger and small capacity refrigeration cycle combined fresh air processor, in order to improve indoor air quality and decrease the energy consumption of the air-conditioning system. Operating principles of both the total heat recovery device and fresh air processor using liquid desiccant are presented. Experimental tests of the fresh air processor installed in a hospital show that energy efficiency ratio (EER) is around 6.3-7.3 in the summer experimental conditions and 4.7-5.0 in the winter experimental conditions. Hour-by-hour simulation, which is based on the climate data in Beijing, shows that the average EER is 5.3 and 4.3 in summer and winter period, respectively. Liquid desiccant has the potential to remove a number of pollutants, avoiding cross contamination. Furthermore, in summer fresh air is dehumidified by contacting liquid desiccant instead of 7 °C chilled water, which avoids wet surfaces in the air-conditioning system and much higher indoor air quality can be achieved.

2005-545

Effect of air supply on the performance of displacement ventilation (Part I) - Thermal comfort

Lin Z, Chow T T, et al.

Indoor Built Environ., April 2005, vol. 14, no. 2, 103-115, 12 figs., 2 tabs., 29 refs

Reports on the effect of the air supply temperature on the performance of a displacement ventilation system. Presents results in the form of predicted percentage of dissatisfied people with regard to thermal comfort.

2005-546

Effect of air supply on the performance of displacement ventilation (Part II) - Indoor air quality

Lin Z, Chow T T, et al.

Indoor Built Environ., April 2005, vol. 14, no. 2, 117-131, 16 figs., 2 tabs., 20 refs

Reports on the effect of the air supply temperature on the performance of a displacement ventilation system in terms of air quality. Measurements were made of carbon dioxide levels, mean age of air along with three volatile organic compounds.

2005-547

Comparison of the modelling and the experimental results on concentrations of ultra-fine particles indoors

Matson U.

Bldg. Environ., July 2005, vol. 40, no. 7, 996-1002, 4 figs., 1 tab., 30 refs

Describes a dynamic method for estimating particle number concentrations indoors. In order to predict the variations of concentrations, a number balance model has been developed. In the model, the total number concentration of particles with sizes from 0.01 to larger than 1microgram was used. The model was validated with experimental data obtained at different measurement locations in Sweden, and the results revealed very good agreement between predicted and measured concentrations. States that this method is a good tool for predicting the number of concentrations of ultra-fine particles (NCUFPs) indoors. If combined with the measurement results even weak indoor sources can be identified, which might be very difficult with a purely experimental technique. The method can also be used to analyse particle removal from the indoor air by mechanisms other than ventilation (sink effects). In addition, the model simulations suggest that at relatively high outdoor concentrations, temporarily lower air change rates could be employed in order to decrease the concentrations of ultra-fine particles indoors. The study revealed that such a ventilation strategy might be applicable in buildings without strong indoor sources (e.g. offices).

2005-548

Windows in the workplace: examining issues of environmental sustainability and occupant comfort in the selection of multi-glazed windows

Menzies G. F., Wherrett J. R.

Energy and Bldgs., June 2005, vol. 37, no. 6, 623-630, 6 figs., 5 tabs., 27 refs

Three studies were undertaken to look at sustainability and comfort issues for a number of different types of multi-glazed windows. Focus groups and interviews with professionals were used to examine issues of sustainability and productivity. Four case study buildings were surveyed to examine the level of energy use for different glazing specifications. A post-occupancy survey was then used to examine the level of comfort in these buildings. Results showed that architects consider comfort and productivity in their

designs, but consider sustainability less often. Surveys of energy usage showed that building design can influence the efficiency of multi-glazed windows; this result was mirrored in the post-occupancy survey where design factors influenced occupant comfort. The research concludes that comfort and productivity in the workplace is related more to design factors than to sustainability factors.

2005-549

A new indoor environmental quality equation for air-conditioned buildings

Mui K W., Chan W T.

Archit. Sci. Rev., March 2005, vol. 48, no. 1, 41-46, 6 tabs., 13 refs

A compact indoor environmental quality (IEQ) logger was developed to facilitate the continuous monitoring of the state of IEQ. The performance of this logger has been validated by large-scale surveys in air conditioned buildings in Hong Kong using the appropriate international standards and protocols. Describes the development of an IEQ comfort equation.

2005-550

Bio-deactivation of hospital pathogens

Otter J.

Health Estate J., April 2005, Vol. 59, No. 4, 41-44, 5 figs, 17 refs

Looks at a significant development for the prevention and control of hospital acquired infection by hydrogen peroxide vapour (HPV) bio-decontamination. Hospital pathogens are becoming resistant to available antibiotics and contaminated hands of healthcare professionals are an established route of infection transmission.

2005-551

Healthcare infection concerns debated

Rayfield J.

Health Estate J., April 2005, Vol. 59, No. 4, 27-28, 30-31 3 figs

Reports on the strategies and consensus reached at the Healthcare Associated Infection conference held in London on 7 March 2005. The Secretary of State emphasised the recently published figures showing a reduction in MRSA infection rate and improved patient survival rates from coronary heart disease and cancer. Highlighted were the infection control measures being designed and installed in new builds. Future published guidance on designing and engineering out infection was expected from NHS Estates.

2005-552

Moderating indoor conditions with hygroscopic building materials and outdoor ventilation

Simonson C J, Salonvaara M, et al.

ASHRAE Trans., 2004, vol. 110, part 2, paper number NA-04-8-3, 804-819, 11 figs., 3 tabs., refs

Contains a numerical study of the indoor temperature, humidity, and comfort and indoor air quality conditions in a bedroom located in Belgium. The performance of

the bedroom is presented for a range of constant outdoor ventilation rates with and without hygroscopic materials.

2005-553

Modelling the double skin facade with plants

Stec W. J., van Paassen A. H. C., et al.

Energy and Bldgs., May 2005, vol. 37, no. 5, 419-427, 14 figs., 4 tabs., 11 refs

The research project at TU Delft aimed to define the thermal performance of the double skin facade with plants. A simulation model was developed and validated. After validating, the simulation model could analyse the influence of plants on the performance of the double skin facade. Further simulations of the total building proved that plants can contribute to the creation of comfortable indoor climates and energy saving. Finally, constructional aspects of applying plants in the double skin facade are mentioned.

2005-554

Emissions from thermal insulations - part 1: development and characteristics of the test apparatus

Virta J., Koivula M., et al.

Bldg. Environ., June 2005, vol. 40, no. 6, 797- 802, 7 figs., 1 tab., 15 refs

An experimental apparatus was designed and constructed to measure emissions from building materials during the flow of modified air through or along the material. Investigates the effects of relative humidity (RH), air flow rate, and temperature on chemical, physical and biological emissions from thermal insulations. The advantages of this low-emission apparatus are clean air output, uniform conditions and interdisciplinary measurements in a single chamber. The apparatus consisted of a system which was capable of achieving a wide range of conditions.

2005-555

Filtering out airborne bacteria

Vokes-Air

Health Estate J., April 2005, Vol. 59, No. 4, 35-36, 2 figs, 1 ref

Examines the risks to patients associated with air contamination that can be significantly reduced by air handling systems containing effective filtration technology. Air handling systems are frequently blamed for the spread of bacteria in hospitals.

2005-556

Radon gas. What is radon gas, and how can it be reduced?

Ware J,

Wiring Matters, Spring 2005, 4,6,8-9

Explains the nature of radon and discusses methods of reducing the gas within buildings. Considers pros and cons of a sump with extract fan, positive pressurisation. Gives recommendations for fan-operated radon reduction systems and sources of further information.

Building structures

2005-557

Commissioning the air barrier system

Anis W.

ASHRAE J., March 2005, vol. 47, no. 3, 35-38,40,42,44, 8 figs., 1 tab., 13 refs

Discusses the buffering of moisture by building materials, and air leakage and its role in transporting moisture through the cavities of the building enclosure; and the control of air leakage using air barriers.

2005-558

Deterioration of European apartment buildings

Balaras C. A., Drousta K., et al.

Energy and Bldgs., May 2005, vol. 37, no. 5, 515-527, 8 figs., 2 tabs., 27 refs

A total of 349 residential building audits were performed in seven European countries to collect data on the degradation of building elements (architectural and installations). The buildings cover typical architectural typologies, sizes, constructions and installations, at different states of deterioration. The data was collected based on a standardised methodology for building audits. Follow up analysis revealed the most important influencing factors on the deterioration of existing residential buildings throughout Europe and estimated service lives of various building architectural elements and electromechanical installations.

2005-559

Work the angles

Bizley G.

Bldg Design, 8 April 2005, No. 1668, 16-20

Describes the construction of a new concert hall in Porto, Portugal. The design and materials used are illustrated as the thought process that created it is revealed in interviews with the architectural team.

2005-560

MetalWorks: Housing

Evans B, Elias H. et al,

MetalWorks, Spring 2005, Supplement to Archit. J., 31 March 2005, Vol. 221, No. 12, 16pp, 20 figs

A series of four articles about the use of light steel framing for prefabricated housing construction. The use in Holland and Japan is described together with the advantages of modular construction that can be varied to reflect the preference of individual owners.

2005-561

Sustainable earth walls to meet the building regulations

Goodhew S., Griffiths R.

Energy and Bldgs., May 2005, vol. 37, no. 5, 451-459, 5 tabs., 23 refs

The thermal conductivity and diffusivity of un-fired clay bricks, a straw clay mixture and straw bales have been measured using a thermal probe technique, with an iterative method for data analysis. The steady-state

air-to-air thermal transmittance, or U-value, and the time-dependent thermal properties of some proposed sustainable earth wall constructions are presented. Sustainable cavity walls of un-fired clay bricks with paper, straw or wool cavity insulation have thermal transmittances less than $0.35\text{W/m}^2\text{K}$, and therefore meet the current United Kingdom Building Regulations. A review of possible methods for thermally up-grading existing earth walls, by adding an internal insulated timber frame construction, again demonstrates possible compliance with the current UK thermal regulations.

2005-562

The development of a simplified u-value calculation method for twin skin metal cladding systems

Gorgolewski M.

Archit. Sci. Rev., March 2005, vol. 48, no. 1, 17-23, 5 figs., 4 tabs., 10 refs

Describes an investigation to develop an appropriate, simplified u-value (thermal transmittance) calculation method for metal cladding systems. Simplified methods of calculating u-values for such construction were investigated. Numerical analysis was carried out for twenty-three constructions, the results were compared to a simplified method originally developed for light steel frame construction. The results demonstrated that good agreement was achieved and consequently the simplified method based on BS EN ISO 6946 has been proposed as an acceptable way of meeting the requirements for the 2002 editions of Approved Documents L1 and L2.

2005-563

Mellow drama

Hannay P.

Archit. J., 31 March 2005, Vol. 221, No. 12, 22-31, 14 figs

Describes the design and construction of the Galeri a new dockside centre in Caernarfon, for a range of performing arts. A steel and timber construction forms a centre for previously isolated creative enterprises and intended to be economically self sustaining.

2005-564

Occurrence and characteristics of moisture damage in residential buildings as a function of occupant and engineer observations

Haverinen-Shaughnessy U., Hyvarinen A., et al.

Indoor Built Environ., April 2005, vol. 14, no. 2, 133-140, 2 figs., 4 tabs., 16 refs

Reports on a study the aim of which was to determine if observations of moisture damage made by occupants were different from observations made by an independent inspector.

2005-565

Predicting indoor temperature and humidity conditions including hygrothermal interactions with the building envelope

Holm A H, Kunzel H M, et al.
ASHRAE Trans., 2004, vol. 110, part 2, paper number NA-04-8-4, 820-826, 10 figs., refs

Describes a model that takes into account moisture sources and sinks inside a room, input from the envelope due to capillary action, and diffusion and vapour absorption and desorption as a response to the exterior and interior climatic conditions.

2005-566

Pole position

Kennett S.
Bldg. Serv. J. CIBSE, April 2005, Vol. 27 No. 4, 34-39, 3 figs

Examines three designs being prepared to build a new research station for the British Antarctic Survey. The extremely hostile conditions call for prefabrication but at the same time on site assembly has to be kept simple with services that require minimal commissioning. Proven techniques applied to military hospitals and railway carriages used in locations such as Alaska and Finland are being considered. Testing facilities in northern Europe have been chosen for their convenience and accessibility.

2005-567

Are you an airhead?

Lloyd S.
Bldg. Serv. J. CIBSE, April 2005, Vol. 27 No. 4, 54-56, 5 figs

The second part of a four-part guide to airtight design. Discusses the air barrier line and the possible conflict with other statutory building requirement. Also looks at the problems of inter-faces between facade systems.

2005-568

Thermal transmittance of a cellulose loose-fill insulation material

Nicolajsen A.
Bldg. Environ., July 2005, vol. 40, no. 7, 907-914, 12 figs., 3 tabs., 18 refs

The thermal performance of cellulose insulation material was investigated and compared with the thermal performance of rock wool batts. The moisture content in selected facade elements insulated with cellulose loose-fill insulation material and wool, was investigated as well as the influence of the moisture content on thermal transmittance. The investigation was carried out as a full-scale test under normal climate conditions in a moisture test house facility. Facade elements were built as timber frame constructions. Heat flow through the facade elements was measured with built-in heat flow meters and the moisture content in the thermal insulation behind the wind barrier was measured with moisture measuring probes

2005-569

A new method to estimate the periodic temperature distribution underneath a slab-on-ground structure

Rantala J.
Bldg. Environ., June 2005, vol. 40, no. 6, 832-840, 11 figs., 1 tab., 16 refs

Creates a method to estimate the temperature distribution at the fill layer underneath a slab-on-ground structure of a heated building. It concerns the typical Finnish slab-on-ground structures, where the footing wall extends above the surrounding soil surface. According to the field measurements and a series of numerical modelling performed in this study, there are three boundary temperatures having an effect on the temperature distribution underneath a slab-on-ground structure: the internal, the external and the subsoil temperature. Later, a relation between the numerically determined static-state weighting factors of these three boundary temperatures and the interrelations of the theoretical thermal transmittance values of the adjoining structural layers is detected. Based on these observations a new semi-analytical method for the estimation of temperature distribution along the fill layer underneath a slab-on-ground structure in periodic conditions is developed. The method applies the superposition principles, where the annual mean boundary temperatures form a basic steady-state temperature distribution and the amplitudes of the external and internal temperatures contribute periodic seasonal alterations.

2005-570

Dreamer or bruiser?

Rock D., Tillotson R., Derbyshire B.
Bldg. Design, 24 March 2005, No. 1666, 10-11

Assesses the work of Ralph Erskine who recently died. Three projects with which he was associated are discussed with those who worked with him. The Ark Hammersmith and collaborator David Rock; Byker Grove, Newcastle, collaborator Roger Tillotson, and Millennium Village, Greenwich, collaborator Ben Derbyshire.

2005-571

Evaluation of moisture buffer effects by performing whole-building simulations

Rode C, Mendes N, et al.
ASHRAE Trans., 2004, vol. 110, part 2, paper number NA-04-7-4, 783-794, 12 figs., 2 tabs., refs

Demonstrates the use of two models for integrated calculation of the hygrothermal behaviour of indoor climates and building enclosures. States that with these models it is possible to predict both the variation of indoor humidity and moisture accumulation in building enclosures.

2005-572

Symbiosis of the double skin facade with the HVAC system

Stec W. J., van Paassen A. H. C.
Energy and Bldgs., May 2005, vol. 37, no. 5, 461-469,
8 figs., 6 tabs., 8 refs

Impact of natural ventilation on the building depends on the design of the several components of the building's facade, HVAC and control system. Presents several tests of a building with different selections of components. The double skin facade is compared to a single skin facade with the external or internal shading device and with a climate wall. The impact of the mechanical or natural night cooling, predictive control is discussed. Final solution represents the possible reduction in HVAC system to balance the costs of the double skin facade. The tests were carried out with the simulation program Simulink and validated with the measurements taken in Test cell at TU Delft as well as in the real office building. Each solution is qualified based on differences in capacities, energy consumptions and costs for various solutions of facade, HVAC system and control. As a final solution optimisation of the HVAC system is presented

2005-573

Do the right thing

Turner M.
Bldg. Design, 1 April 2005, No. 1667, 10-13

Examines the refurbishment of Kensal House Nursery, part of a Grade II listed housing estate built in 1938 by Gas Light and Coke Company. The nursery retains the circular outline of an old gasometer. The intention was to discover the original building including extensions added in 1970s and to reinstate as many original features as possible such as storage on the back curved wall and the concertina windows onto the playground elevation. The main external intervention was a new ramp to create disabled access.

2005-574

Humane resources

Woodman E.
Bldg. Design, 22 April 2005, No. 1670, 14-18, 6 figs

Describes the new offices for Amnesty International in Shoreditch, an area that has been transformed over the past decade. The article examines the building design and how it reflects the image of the charity it houses. There was a desire to avoid any perception that funds were being diverted from campaign work to real estate. Economy was thus important throughout the design process.

2005-575

Pauline conversion

Woodman E.
Bldg Design, 15 April 2005, No. 1669, 14-17

Examines the recently completed restoration of Saint Paul's church Deptford. Originally designed by Thomas Archer and constructed between 1712 and 1730 it had fallen into disrepair and the issue of disable access needed to be addressed. Funding from the Heritage Lottery Fund enabled work to commence in 2000. The Baroque style has been retained but modern services including fibre optic lighting and new under floor heating have been installed.

Water services

2005-576

Desalination - water for the next generation

Anon
Filtr. Sep., March 2005, Vol. 42, No. 02, 14-25, 5 figs,
2 tabs

Presented in three sections. The factors behind the growth in desalination; Desalination, the basics; and case studies of seawater desalination in Israel and California. These form an overview of the current situation with expert opinions as to why desalination is becoming more economically acceptable. The basic technical aspects are described and finally details are given of two plants.

2005-577

Operational performance of siphonic roof drainage systems

Arthur S., Wright G., et al.
Bldg. Environ., June 2005, vol. 40, no. 6, 788-796, 8
figs., 3 tabs., 15 refs

Focuses on the analysis of a large data set obtained from installed siphonic roof drainage systems. Particular attention is given to the ability of the studied systems to prime and meet self-cleansing criteria during sub-design criteria events with return periods of less than one year. Conclusions are drawn regarding the performance characteristics of multi-outlet siphonic roof drainage systems, and plans for future work are outlined.

2005-578

Numerical evaluation of alternative residential hot water distribution systems

Baskin E, Wendt R, et al.
ASHRAE Trans., 2004, vol. 110, part 2, paper number
NA-04-5-3, 671-681, 10 figs., 4 tabs., 1 ref

Reports on the development of a numerical model of hot water distribution systems that allows analysis of various types of piping configurations with and without insulation.

2005-579

Self-sealing waste valves for domestic use: an assessment

Building Research Establishment, White M K, Griggs J
C, Sutcliffe S.
BRE, Information Paper IP 5/05, 2005, 8pp., figs., refs,
ISBN 1860817467

Presents results of laboratory and field testing to assess the performance of self-sealing waste valves under a range of operating conditions. Summarises the key features of the valve, and demonstrates its suitability for use as a waste valve for sanitary appliances, including discharges from unvented domestic water heaters and condensate from boilers and air conditioning units. The valve has also been evaluated as an air admittance valve for installation in domestic buildings.

2005-580

Online domestic hot water end-use database

Tiller K D, Henze G P, et al.
ASHRAE Trans., 2004, vol. 110, part 2, paper number NA-04-5-4 (RP-1172), 682-689, 3 figs., 3 tabs., refs

Discusses the development of methods and tools to characterise total domestic hot water consumption according to individual end use. Describes the structure and function of a web-enabled database entry and query system that allows access to the project results.

2005-581

Measured performance and impacts of "drop in" residential heat pump water heaters

Tomlinson J J, Murphy R W.
ASHRAE Trans., 2004, vol. 110, part 2, paper number NA-04-5-2, 664-670, 12 figs., 1 tab., refs

Presents the results of a field evaluation of residential heat pump water heaters. Presents comparative results on energy efficiency, dehumidification performance, electric demand, and load factors.

Management, process and productivity

2005-582

High anxiety

Clayfield R.
Elect. Mech. Contractor, April 2005, vol. 104, No. 3, 21-22

Examines falls from height and looks at what can be done to minimise accidents on construction sites. Indicates points likely to be included in the new Work at Height Regulations and the value of HSE inspections. Often fatal accidents can be avoided by applying simple measures identified through a risk assessment.

2005-583

Identifying the factors which affect the decision to attain ISO 14000

Curkovic S., Sroufe R., Melnyk S.
Energy Int. J., June 2005, vol. 30, no. 8, 1387-1407, 3 tabs., 48 refs

Uses qualitative case studies to identify which factors affect the decision to attain ISO 14000 certification and also explains how these factors can influence the level of success achieved during the certification process.

2005-584

The challenge of customer orientation in the construction industry

Dulaimi M. F.
Constrn. Innov., March 2005, vol. 5, no. 1, 3-12, 1 fig., refs

Argues that the concept of customer orientation in construction has been influenced by the passive approach to product definition adopted by professional

advisors and consultants. Examines the current knowledge of the customer orientation concept and presents a research model that can be used to examine the effectiveness of current practices in providing satisfactory products and services to customers. Reports the results of an investigation into the effectiveness of existing methods, practices and philosophies deployed by organisations involved in construction in identifying customer needs.

2005-585

Safety first?

Luke A.
Elect. Mech. Contractor, April 2005, vol. 104, No. 3, 17-18

Looks at the progress regarding site safety four years after the industry health and safety summit. Falling short of self-imposed targets is the view of Department of Work and Pensions. New ways need to be found in order to move forward. The way employees and employers work together needs to be more productive, committed and adaptable.

2005-586

Developing a framework to measure organizational and employee skills development in a professional engineering design consultancy.

Matsumoto I. T., Stapleton J.
Constrn. Innov., March 2005, vol. 5, no. 1, 53-66, 8 figs., refs

Sponsored by a leading UK-based engineering design consultancy, a specification for a technologically driven skills management system was developed. It allowed the organisation, its teams and the employees, to better measure, manage and develop their skill capabilities effectively. Key issues addressed by this paper include how skill ability can be measured, how skills can be structured, and how these measurements and structure can be combined to generate skills reports. The development of a prototype application, based on the above mentioned specification, tested the validity of the specification, and demonstrated to the sponsor the benefits that can be achieved by a systematic and practical approach to capturing, reviewing, planning and managing employee skills. It also highlighted the important business rationale for using such systems.

2005-587

An examination of the management challenges faced by growing SCEs in South Wales

Packham G., Miller C.J., et al.
Constrn. Innov., March 2005, vol. 5, no. 1, 13-25, refs

Examines how small growth oriented construction firms have adopted management practices to sustain growth. A group interview technique was utilised to examine the management development process within small construction enterprises (SCEs) in the South Wales area. The research revealed that while management practices such as marketing, financial management and planning had been implemented to facilitate growth, the importance of these practices

often varied across firms. Nevertheless, firms that continued to be growth oriented were more inclined to consider the strategic benefits that certain practices provide. Based on these findings, concludes that management training initiatives aimed at improving firm development in the construction industry must be tailored to fit the strategic goals of the firm if they are to engender sustainable growth.

2005-588

Liaison and communication

Pearson D.

Facilities Mgmt., April 2005, vol. 12, no. 7, 20-21

Discusses some ground rules for effective liaison throughout the supply chain and highlights the importance of collaboration between all parties.

2005-589

Factors hindering the performance of construction project managers

Powl A., Skitmore M.

Constr. Innov., March 2005, vol. 5, no. 1, 41-51, 1 tab., refs

Reports on the results of a worldwide survey of Project Managers (PMs) concerning effective performance, nature and extent of the hindrances and shows that they have the potential to be more effective and productive in their work. Associated with this is a need to be more aware of progress and developments in the Construction Industry generally, more aware of progress and developments in their own organisation, more delegation of contract administration tasks and more general administrative support. Also highlighted is the lengthy working hours of PMs.

Sustainability and renewable energy

2005-590

A burning issue

Anon

Plant Works Engng., March 2005, No. 284, 20-21

Identifies the importance to British business of energy saving as the cost is now predicted to rise for years to come. Combined with the ambitious Government target to reduce carbon emissions by 60% by 2050 engineering and manufacturing industries that are energy intensive need to take urgent action, but many are still reluctant and risk losing their competitive edge as energy prices spiral upwards.

2005-591

Costing sustainability: How much does it cost to achieve BREEAM and EcoHomes ratings?

Building Research Establishment, Cyril Sweett.

BRE, Information Paper IP 4/05, 4pp., 1 fig., 4 tabs, ISBN 1860817424

Presents some key findings from a costing analysis for a broad range of sustainability technologies and design solutions for four types of building: a house, a naturally

ventilated office, an air-conditioned office, and a healthcare centre.

2005-592

Creating synergies for sustainable design

Genest F, Charneux R.

ASHRAE J., March 2005, vol. 47, no. 3, 16-21, 5 figs., 1 tab

Discusses the "four R's" of sustainable design: reduce, reuse, recycle and rethink as applied to the design and construction of a retail store in Canada. Covers: synergies, optimisation of building envelope and glazing, geoexchange central plant, radiant slabs, and hybrid ventilation.

2005-593

Shades of green

Pearson A.

Bldg. Serv. J. CIBSE, April 2005, Vol. 27 No. 4, 24-30, 5 figs

Describes the new headquarters building for the Chartered Institute of Personnel and Development. It was the first building approved under Merton Council's unitary development policy requiring 10% of energy used from renewable sources. Domestic hot water is generated from roof mounted solar collectors. These are sized for summer conditions so that sufficient heat is generated to ensure that the boilers do not need to run.

2005-594

An innovative sustainable process for VOCs recovery from spray paint booths

Pierucci S., Del Rosso R., et al.

Energy Int. J., June 2005, vol. 30, no. 8, 1377-1386, 4 figs., 5 tabs., 9 refs

Presents an innovative and sustainable process based on VOC absorption. Describes the plant including operating conditions and economic evaluations

2005-595

Designing with solar power. A source book for building integrated photovoltaics (BIPV)

Prasad D, Snow M. (eds.)

Earthscan, 2005, 252pp. figs., tabs., refs, 523.72, ISBN 1844071472

Discusses holistic design process for buildings and examines photovoltaic technologies and their integration in buildings including architectural appropriateness, costs, and system efficiency. Presents 22 international case-studies highlighting design and development issues, architectural and technical quality. Considers the potential of PV including solar yield and issues of surfaces of building envelopes on a city scale. Provides best practice of basic electrical concepts, reliability and international standards.

2005-596

The innovation process in the energy field

Vidil R., Marvillet C.

Energy Int. J., June 2005, vol. 30, no. 8, 1233-1246, 4 figs., 8 refs

Describes the various mechanisms behind innovative technologies in the energy field in both a French and European context using three different examples: compact heat exchangers, refrigeration equipment, hydrogen and fuel cells.

Acoustics

2005-597

Noise levels of routine non-occupational activities

Neitzel R

Noise Vib. Worldwide, April 2005, vol. 36, no. 4, 20-24, 1 fig., 2 tabs., 11 refs

Reports results of a study where construction workers wore datalogging noise dosimeters and simultaneously completed activity logs. The noise and activity data were combined to estimate the exposure levels associated with routine non-occupational activities. Concludes that findings indicate that occupational exposures contribute far more to their total exposure than does the noise from their routine non-occupational activities.

Building services in general

2005-598

Lancaster Labs take off

Anon

Elect. Mech. Contractor, May 2005, Vol. 104 No. 4, 16-17

Briefly describes the new research facility at Lancaster University for the research and development of information and communication technology. Two buildings linked by a three level bridge containing the entrance. 3D modelling enabled spatial coordination of services. The building has a BREEAM rating of excellent and incorporates low energy lighting, heat recovery and energy efficient motors.

2005-599

Experiment in design

Booth R.

Bldg. Design, 18 March 2005, 16-20

Examines the innovations for a new science laboratory for University of Manchester. Emphasis on daylight and flexibility of layout are key elements for comfortable and interactive working conditions. Flexibility enables new teams of scientists to fit into the space without major cost conversions.

2005-600

Climate change and the indoor environment: impacts and adaptation

Chartered Institution of Building Services Engineers CIBSE, TM 36: 2005, 53pp., figs., refs, ISBN 1903287502

Addresses the issue of how climate change in the UK over the 21st century may affect summertime thermal comfort in buildings and the energy use of associated heating, ventilation and air conditioning systems. Considers the climate change scenarios; discusses design targets for thermal performance and energy use, and general implications on the performance of different types of building. Presents results of dynamic thermal modelling of 13 case study buildings, and considers further strategies and remedial options for those buildings where limitations to performance have been identified.

Legal issues

2005-601

Impact of hazardous waste regulations

Blenkharn I.

Health Estate J., April 2005, Vol. 59, No. 4, 23-25, 2 tabs, 1 fig

Clinical waste is foremost among waste streams in hospitals and accounts for more than 60% of disposal costs. The Hazardous Waste Regulations 2004 (HWR) comes into force July 2005 and looks set to change considerably the approach to clinical waste management.

2005-602

Marking of electrical and electronic equipment in accordance with Article 11(2) of Directive 2002/96/EC (WEEE)

European Standard

BSI, EN 50419:2005, 6pp, ISBN 0580454479

Specifies a marking for electrical and electronic equipment in accordance with Article 11(2) of Directive 2002/96/EC Waste from electrical and electronic equipment (WEEE).

2005-603

Strategic advantages: responsible outsourcing in the new asset management environment

Mather D.

Maintenance and Asset Mgmt., February 2005, Vol. 19, No. 4, 37-38

Outsourcing by reducing direct costs and accessing specialist services has enabled companies to become more competitive. Legislation concerning the management and control of major industrial hazards has led to the realisation that all such management must be legally defensible.

Miscellaneous

2005-604

Design, construction, modification, maintenance and decommissioning of filling stations

Association for Petroleum and Explosives Administration

APEA, 2nd Edition, March 2005, 258pp., figs., tabs., refs, 625.748.54, ISBN 085293419X

Provides technical information on the storage and dispensing of petroleum products used as fuels for motor vehicles including petrol, diesel, and LPG. It covers civil, mechanical, hydraulic and electrical installation issues for the planning, design, construction, commissioning, modification, maintenance and decommissioning of filling stations. Provides information aimed at minimising the risks from fire and explosion, to health and the environment. Describes good practice and certain legal requirements, particularly those applicable in Europe and the UK.

2005-605

Microbiological safety cabinets - Information to be supplied by the purchaser to the vendor and to the installer, and siting and use of cabinets - Recommendations and guidance

British Standards Institution

BSI, BS 5726:2005, 9pp, ISBN 0580455904

Gives recommendations and guidance on information to be supplied by the purchaser to the vendor and to the installer, on siting, and on use, for microbiological safety cabinets as specified in BS EN 12469.

2005-606

Cost model. Theatres

Davis Langdon.

Bldg. 22 April 2005, no. 16, 66-73

Discusses the design issues, operational considerations, procurement issues and presents costs associated with new and refurbished theatres.

2005-607

Briefing framework for secondary school projects

Department for Education and Skills

TSO, DfES Building Bulletin 98, 2004, 64pp, ISBN 0112711529

Presents information to help in the creation of a brief for any major project in a mainstream secondary school. Discusses the process of creating a brief, and how it should fit within a strategic masterplan. Presents the key design criteria that should be included in the brief and the minimum building area requirements for each of the six categories of space within the buildings. Concludes with minimum site area requirements for categories of outdoor space.

2005-608

The modern airport terminal. New approaches to airport architecture

Edwards B.

Spon Press, 2nd ed. 2005, 293pp., figs., refs, 725.39, ISBN 0415248124

Presents a guide to the planning and design of airport terminals and their facilities. highlights the environmental and technical issues that need to be considered. Contemporary examples are critically reviewed through a series of case studies. Includes technical standards on fire safety, lighting, heating, safety and security.

2005-609

An urban approach to climate-sensitive design. Strategies for the tropics

Emmanuel M R.

Spon Press, 2005, 172pp., figs., tabs., refs, 697(213), ISBN 0415334101

Presents a general background to the environmental issues facing tropical building designers - energy consumption and comfort implications of buildings and an overview of microclimate changes brought about by urbanization. Considers new ways of looking at urban design from a climatic design perspective. Emphasises the design strategies that can mitigate the negative impacts of tropical urban climate. Concludes with a series of strategies that facilitate movement between interconnected urban activity patterns in a climatically suitable manner.

2005-610

Grease separators - Part 1: Principles of design, performance and testing, marking and quality control

European Standard

BSI, EN 1825-1:2004, 50pp, ISBN 0580454436

Specifies definitions, nominal sizes, and principles of design, performance requirements, marking, testing and quality control for grease separators.

2005-611

Specification for the design and manufacture of site built, vertical, cylindrical, flat-bottomed, above ground, welded, steel tanks for the storage of liquids at ambient temperature and above.

European Standard

BSI, EN 14015:2004, 247pp, ISBN 0580454614

Specifies the requirements for the materials, design, fabrication, erection, testing and inspection of site built, vertical, cylindrical, flat bottomed, above ground, welded, steel tanks for the storage of liquids at ambient temperatures and above.

2005-612

An analysis of the effective R-value for insulation buried attic ducts

Griffiths D, Zuluaga M.

ASHRAE Trans., 2004, vol. 110, part 2, paper number NA-04-6-3, 721-726, 4 figs., 3 tabs., refs

Presents the initial analytical work performed to quantify the energy benefits of burying ducts under loose fill attic insulation and assess the sensitivity of these benefits to different installation configurations.

2005-613

Using a CFD approach for the study of street-level winds in a built-up area

Hu C-H., Wang F.

Bldg. Environ., May 2005, vol. 40, no. 5, 617-631, 13 figs., 1 tab., 23 refs

The street-level winds in a built-up area are simulated numerically using a conventional method that is commonly applied in the industry. The method is described in terms of computational domain, grid density, turbulence model and boundary conditions. Testing of the domain size and the grid density is also conducted to minimize the numerical errors and the computed values are compared with the wind tunnel data available from a previous study. The accuracy requirement of using CFD in the environmental wind studies is discussed and this study suggests that applying the relatively simple CFD approach is adequate to investigate the street-level winds during the phase of preliminary design while more attention is required when the building layout becomes complicated.

2005-614

Assessing the adaptability of the existing homes of older people

Lansley P., Flanagan S., et al

Bldg. Environ., July 2005, vol. 40, no. 7, 949-963, 5 figs., 7 tabs., 11 refs

An approach to understanding the impact of the needs of older people on adaptation requirements based on the development of standard User Profiles and Mobility Profiles is presented together with an analysis of a varied set of 82 properties selected from across the UK.

2005-615

Numerical analysis of outdoor thermal environment around buildings

Li X., Yu Z., et al.

Bldg. Environ., June 2005, vol. 40, no. 6, 853-866, 14 figs., 2 tabs., 16 refs

Proposes a numerical method to simulate the outdoor thermal environment around buildings. By this method, temperature distributions of the outdoor air, building surfaces and ground surfaces are achieved by combining computational fluid dynamics (CFD) calculation of the air distribution and the energy balance calculation of surfaces. In every computing time step, the outdoor air distribution is calculated as quasi-steady condition. And the surface temperatures of buildings and ground are simplified as "shadow zone temperature" and "sunshine zone temperature" to reduce the calculating time and

memory space. Response factor method is employed to deal with the transient heat transfer between outdoor air and surfaces of buildings and ground. The numerical method is validated by the measured data of outdoor thermal environment around one single building and the simulated temperature distributions are illustrated and analysed at different time in a day.

2005-616

Auditory threshold profile of Indian automobile drivers

Majumder J, Mehta C R, et al.

Noise Vib. Worldwide, March 2005, Vol. 36, No. 3, 9-17, 3 figs, 4 tabs, 15 refs

Assesses the hearing threshold profiles of automobile drivers in India. Based on a study of 90 healthy male subjects divided into three groups, drivers with less than 10 years experience, drivers with more than ten years experience and office workers. Statistical analysis revealed significant differences in the audiometric profile of drivers compared with office workers. Long term and continuous exposure to automobile sound accompanied by environmental sound was the main cause of the poor audiometric status of drivers.

2005-617

Graphic symbols for heating, ventilating, air-conditioning, and refrigerating systems.

USA, ASHRAE

ANSI/ASHRAE, Standard 134-2005, 80pp

Provides a comprehensive set of airside, piping, controls and equipment symbols related to HVAC&R systems. Identifies graphic symbols by name, configuration and description. The symbols are intended for use in the preparation of manual drawings and those produced by computer aided draughting.



JOURNALS SURVEYED WITH ABBREVIATIONS

A

ACR Today	(GB)	ACR Today
Air Condit. Refrig. News	(GB)	Air Conditioning & Refrigeration News
Archit. J.	(GB)	Architects' Journal
Archit. Sci. Rev.	(AU)	Architectural Science Review
Arup J.	(GB)	The Arup Journal
ASHRAE IAQ Appl.	(US)	ASHRAE IAQ Applications
ASHRAE J.	(US)	ASHRAE Journal (American Society of Heating, Refrigeration & Air Conditioning Engineers)
ASHRAE Trans.	(US)	ASHRAE Transactions

B

Bldg.	(GB)	Building
Bldg. Acoustics	(GB)	Building Acoustics
Bldg. Control	(GB)	Building Control
Bldg. Design	(GB)	Building Design
Bldg. Environ.	(GB)	Building & Environment
Bldg. Homes	(GB)	Building Homes
Bldg. Serv. Engng. Res. Tech.	(GB)	Building Services Engineering Research & Technology
Bldg. Serv. Environ. Engr.	(GB)	Building Services & Environmental Engineer
Bldg. Serv. J. CIBSE	(GB)	Building Services Journal
Bull. Int. Inst. Refrig.	(F)	Bulletin of the International Institute of Refrigeration

C

Clim. Cont. News	(AU)	CCN Climate Control News
Condition Monitor	(GB)	Condition Monitor
Constrn. Innov.	(GB)	Construction Innovation
Constrn. News	(GB)	Construction News
Consul. Specif. Engr.	(US)	Consulting Specifying Engineer

D

Distr. Energy	(US)	District Energy
DucTales	(US)	DucTales

E

EcoLibrium	(AU)	EcoLibrium
Elect. Mech. Contractor	(GB)	Electrical and Mechanical Contractor
Elect. Rev.	(GB)	Electrical Review
Elect. Times	(GB)	Electrical Times
Energy and Bldgs.	(CH)	Energy and Buildings
Energy Bldgs. Industry	(GB)	Energy in Buildings and Industry
Energy Engng.	(US)	Energy Engineering
Energy Environ. Mgmnt.	(GB)	Energy and Environmental Management
Energy Int. J.	(GB)	Energy - The International Journal
Environ. Engng.	(GB)	Environmental Engineering
Essentialfm	(GB)	Essential FM
Euroheat and Pwr. Fern. Internat.	(D)	Euroheat & Power Fernwarme International

F

Facilities Mgmnt.	(GB)	Facilities Management
Facilities Mgmnt. J.	(GB)	Facilities Management Journal
Filtr. Sep.	(GB)	Filtration & Separation
Fire Prev., Fire Engrs J.	(GB)	Fire Prevention, Fire Engineers Journal
Fire Prot. Engng.	(US)	Fire Protection Engineering
Fire Safety Engng.	(GB)	Fire Safety Engineering

G

Gas Engng. Mgmnt.		Gas Engineering and Management
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H

Health Estate J.	(GB)	Health Estate Journal
HAC	(GB)	HAC
Heat. Pip. Air Condit. Engng.	(US)	Heating, Piping & Air Conditioning Engineering
H and V News	(GB)	H & V News
Heat. Vent. Rev.	(GB)	Heating and Ventilating Review

I

Indoor Air	(DK)	Indoor Air
Indoor Built Environ.	(CH)	Indoor Built Environment
Insul. J.	(GB)	Insulation Journal
Int. J. Amb. Energy	(GB)	International Journal of Ambient Energy
Int. J. Energy Res.	(GB)	International Journal of Energy Research
Int. J. HVACandR Res.	(US)	International Journal of Heating, Ventilating, Air Conditioning and Refrigerating Research
Proc. Inst. Refrig.	(GB)	International Journal of Refrigeration
Int. J. Vent	(GB)	International Journal of Ventilation
IRHACE J.	(NZ)	IRHACE Journal

J

JARN	(JP)	JARN
J. Appl. Fire Sci.	(US)	Journal of Applied Fire Science
J. Constrn. Procure.	(GB)	Journal of Construction Procurement
J. Fire Prot.	(US)	Journal of Fire Protection

L

Ltg.	(AU)	Lighting Art & Science for International Designers
Ltg. Equip. News	(GB)	Lighting Equipment News
Ltg. J.	(GB)	Lighting Journal
Ltg. Res. Tech.	(GB)	Lighting Research & Technology

M

Maintenance and Asset Mgmnt.	(GB)	Maintenance & Asset Management
Modern Bldg. Serv.	(GB)	Modern Building Services

N

NICEIC Connections	(GB)	NICEIC Connections
Noise Vib. Worldwide	(GB)	Noise and Vibration Worldwide

P

Plant Engr.	(GB)	Plant Engineer
Plant Engng.	(US)	Plant Engineering
Plumbing Heating Engng.	(GB)	Plumbing & Heating Engineering
Premises and Facilities Mgmnt.	(GB)	Premises & Facilities Management

R

Refrig. Air Condit.	(GB)	Refrigeration and Air Conditioning
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S

Security Mgmnt. Today	(GB)	Security Management Today
Sulz. Tech. Rev.	(CH)	Sulzer Technical Review
Swimming Pool News	(GB)	Swimming Pool News

T

Tunnelling Underground Space Technol.	(GB)	Tunnelling and Underground Space Technology
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W

Water Energy Environ. J.	(GB)	Water Energy & Environment Journal
Waterline	(GB)	Waterline
Wiring Matters	(GB)	Wiring Matters

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