WORKSHOP PROPOSALS FOR 2012 NCEUB WINDSOR CONFERENCE

Workshop 1 Friday 13th April 14:30

Title: Standards for the indoor environmental Quality

Chair: Bjarne W. Olesen – International Centre for Indoor Environmnet and Energy, Technical University of Denmark.

Email chair: bwo@byg.dtu.dk

Workshop description:

This workshop will deal with criteria for the indoor environmental quality, which can be found in international and national standards and rules. Three different papers will present the background to the following discussions and provide lead ideas that can be developed and discussed during the session.
This workshop will start with a paper by Baizhan Li of Chongqin university on " New Chinese standard for the indoor environment" followed by a paper by Runa Hellwig from Augsburg University of Applied Science titled "Developing a Revised Rule on Workplace Temperature Requirements". Finally Bjarne W. Olesen will present a paper on "Revision of EN15251 standard related to criteria for the indoor environment"
The main focus of the workshop will be to discuss how existing standards and guidelines for the indoor environmental quality (thermal comfort, indoor air quality, lighting and acoustic) can be improved. Is it possible to make a standard that can be used worldwide for all types of buildings or do we need national standards?
The workshop shall give input to an upcoming revision of EN15251 with the aim to make an ISO-EN standard, which will provide indoor environmental criteria for design of buildings, calculation of energy performance of buildings and evaluation of the indoor environment.

Workshop format & program

This workshop will after a couple of back ground presentations lead into a general discussion and listing of ideas and issues to be dealt with in future revisions of standards.

Workshop 2: Friday 13th April 14:30

Title: Designing Comfortable Buildings

Joint chairs:
Susan Roaf – Heriot Watt University, Edinburgh, Email: s.roaf@hw.ac.uk
Fionn Stevenson, Sheffied University

Workshop description:

This workshop is about how people approach the challenge of designing buildings for comfort. Three different papers will inform the following discussions and provide lead ideas that can be developed and discussed during the session. After a century of handing over responsibility for the provision of comfort to models, machines and scientifically derived and assumption heavy formulae the challenge of re-empowering building designers to really understand how to provide low energy comfort in more passive buildings is a challenging one.

This workshop will start with a paper by de Dear and Candido discussing the fundamental question of An Adaptive Thermal Comfort Policy for a Geographically Dispersed Property Portfolio; Deciding When and Where to Air-Condition in a Warm Climate Zone. A core issue in this choice is when does natural convective cooling cease to be sufficient and the second paper by Indraganti is on the significance of air movement for thermal comfort in warm climates in the Indian context. Theoretical limits are all very well but what about the reality of designing for comfort in the context of real buildings. Stevenson, Carmona-Andreu and Handcock present a paper on comfort in the context of the usability barriers in low carbon housing in the UK.

The main focus of the workshop will be to try and map out key factors that designers can consider when designing for comfortable buildings – and this theme will be pursued throughout the hour and a half with a range of means. This is a very complex subject and its outputs should blend nicely into the more detailed discussion in the Saturday workshop on controls including the man-environment interactions through controls at room level or workstation level over thermal environment (heating, cooling) and indoor air quality (ventilation). Think: operable windows, clothing protocols, thermostats, ceiling fans, personal ventilation systems, and so forth.

The difference with this workshop will be that it deals with the building and micro, meso and macro-climate level considerations rather than the workstation level. The issues thrown up in the papers will provide a rich source of information on which to build an innovative discussion on the topic – What role does thermal history play in achieving comfort? How important is the ability to move in designing buildings? How can spatial planning be used to optimized the comfort experience over time? What are the larger issues around constraint and control in the comfort equations ? How do designers build in the very different comfort aspirations of people in different locations, societies and climates ? Is it better to heat and cool the person or the building ? etc.

Workshop format & program

This workshop will combine thought capture exercises with paper presentations and wide ranging discussions in which all will be expected to contribute.

Workshop 3: Saturday 14th April 16:30

Title: Personal control and Occupant behavior

Chairs: Atze Boerstra, BBA Binnenmilieu + Eindhoven University of Technology (NL)
Gail Brager, Centre for the Built Environment, UC Berkeley (USA)

Emails chairs: ab-bba@binnenmilieu.nl & gbrager@berkeley.edu

Workshop description:

The workshop is about personal control and behavioral adaptation of building occupants. The main focus is on man-environment interactions and control at room level or workstation level over thermal environment (heating, cooling) and indoor air quality (ventilation) in a non-domestic environment. Think: operable windows, clothing protocols, thermostats, ceiling fans, personal ventilation systems, and so forth. Two papers will form a basis for the discussion: Impact of Available and Perceived Control on Comfort and Health in European Office Buildings (#1261) presented by Atze Boerstra and Occupant Response to Window Control Signaling Systems (#1250) presented by Katie Ackerley. The main goal of the workshop is to map what is and what is not known about personal control over indoor climate and occupant behavior and its effect on comfort, health and productivity and to identify new control related research areas.
Many studies have shown that offering the right amount of personal control over indoor climate results in less building related symptoms, more comfort and increased performance of the occupants. But what is the mechanism behind this? How does the (ab)use of building controls affect energy use? Can we achieve 100% satisfaction (PD=0%) with the right mix of controls? Is offering full control always the right solution? Or do people in some situation actually prefer central control? What is most energy efficient – automated controls or offering full control to the occupants? Is it just about controlling the indoor climate or should we also look at control over the visual and acoustic environment? What is the relation between available control, perceived control and exercised control? How about group use of operable windows, thermostats etc in open plan offices, class rooms and other larger spaces? What design criteria (limits) should be used when designing personal climatisation solutions? Are high tech personal control solutions preferred over low tech solutions like operable windows? Do we know enough about occupant behavior to predict how controls will be used in practice? What are new personal control research areas that should be addressed in the future?

Workshop format & program

This workshop will be highly INTERACTIVE. The general idea is: we bring the questions, all together generate the answers.

Workshop 4: Saturday 14th April 16:30

Title: How to make comfortable low energy buildings that really do work?

Chair: Paul Tuohy – ESRU, University of Strathclyde
Email of chair: paul.tuohy@strath.ac.uk

Workshop description:

Many buildings are intended to be robust, comfortable, low energy, and low carbon. However in most cases the intended performance is not achieved in practice. In this workshop the question to be answered is 'how do we address this and create buildings that really do work?'

Three papers will bring forward some relevant information to help stimulate ideas:

Paper 1: The first paper gives insight into reasons found for performance gaps in buildings that are promoted as best practice and examples to be replicated. Whether current initiatives such as EPBD, LEED, BREEAM, Soft Landings, Green Star, BCVTB, or BIM will address these gaps is briefly reviewed.

Paper 2: There is increasing reliance on building simulation in design of advanced buildings; the second paper investigates the variations in predicted performance resulting from different simulation users; and discusses weaknesses in the current use of simulation and the potential impact this can have.

Paper 3: To have a design that is informed by feedbacks from actual performance of similar buildings would appear to be a key to design success. The third paper reviews predicted energy performance, actual energy performance, and occupant satisfaction for 60+ buildings. The buildings are categorized considering occupant and climate adaptation opportunities and building servicing strategy; the performance of the different building categories is analyzed and relative performance highlighted.

Discussion:

The Windsor conference is a great opportunity to gather diverse inputs. The intention is to break into 'buzz' groups of 4-7 persons to briefly consider the following:

1. Best practice examples: Can we identify buildings and building types that really do work? What are the key things that make these buildings successful? Can we identify processes for creating buildings that really do work? What are the key things that make these processes successful?

2. What can be done to improve current industry or policy initiatives so that comfortable low energy buildings are created (e.g. EPBD, LEED, BREEAM, Soft Landings, Green Star, BCVTB, BIM etc…).

Then each buzz group gives an update to the others on the output from their group discussions and a broader discussion chaired.