Welcome to

# Healthy Indoor Environments Workshop

at Pufendorf Institute



Lund, 2014.10.30

# Today’s workshop

An official release of the mulidisciplinary theme **”Healthy Indoor Environments”** funded by the Pufendorf Institute at the Lund University.

# Today's workshop programme

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|---|---|
| 9:30 - 9:40 | Welcome, project overview - Aneta Wierzbicka |
| 9:40 – 9:45 | Pufendorf Institute for Advanced Studies – Sune Sunesson and Sture Forsén |
| 9:45 - 10:25 | Productivity in Schools - Pawel Wargocki, former ISIAQ President, Technical University of Denmark |
| 10:25 - 11:05 | Endocrine Disrupting Chemicals in Indoor Environments and Health Risks - Carl-Gustaf Bornehag, Karlstad University |
| 11:05 -11:20 | Coffee break |
| 11:20 - 12:20 | Overview of the areas of expertise among members of the project<br>• Indoor Environment and Health – Emilie Stroh<br>• Occupants behaviour, needs and preferences – Jonas Borell<br>• Building design and performance – Yujing Li and Johan Stein |
| 12:20 - 13:15 | Lunch |

# Today's workshop programme

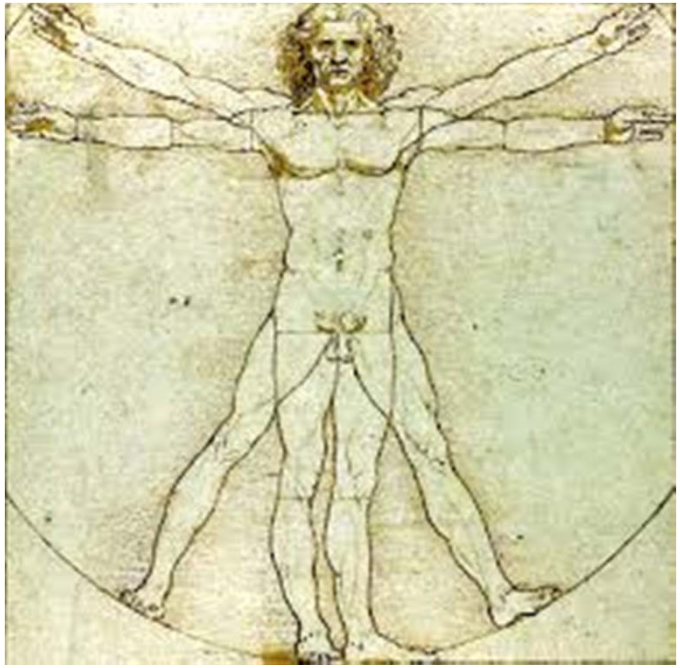
| | |
|---|---|
| 13:15 - 13:55 | Från misstanke till åtgärd. Arbetsgång vid inomhusmiljöproblem - Johan Elvin, Arbetsmiljöingenjör vid företagshälsovården AVONOVA (presentation given in Swedish) |
| 13:55 - 15:25 | Discussions - the world café |
| 15:25 - 15:40 | Coffee break |
| 15:40 - 16:00 | Summary of the discussions outcomes |
| 16:00 - 16:15 | Invitations to planned activities – calendar |

# How much time do we spend indoors?



# People and indoor environments

**Physical factors**
Noise
Thermal climate
Lighting
Pollutants
Vibrations
Interior design
Radiations



**General health status**

**Psychological well-being /sensitivity**

**Individual needs**
Expectation
Possibility to control

**Visual aspects**

**Work organisation**
Work load

**Social interaction**



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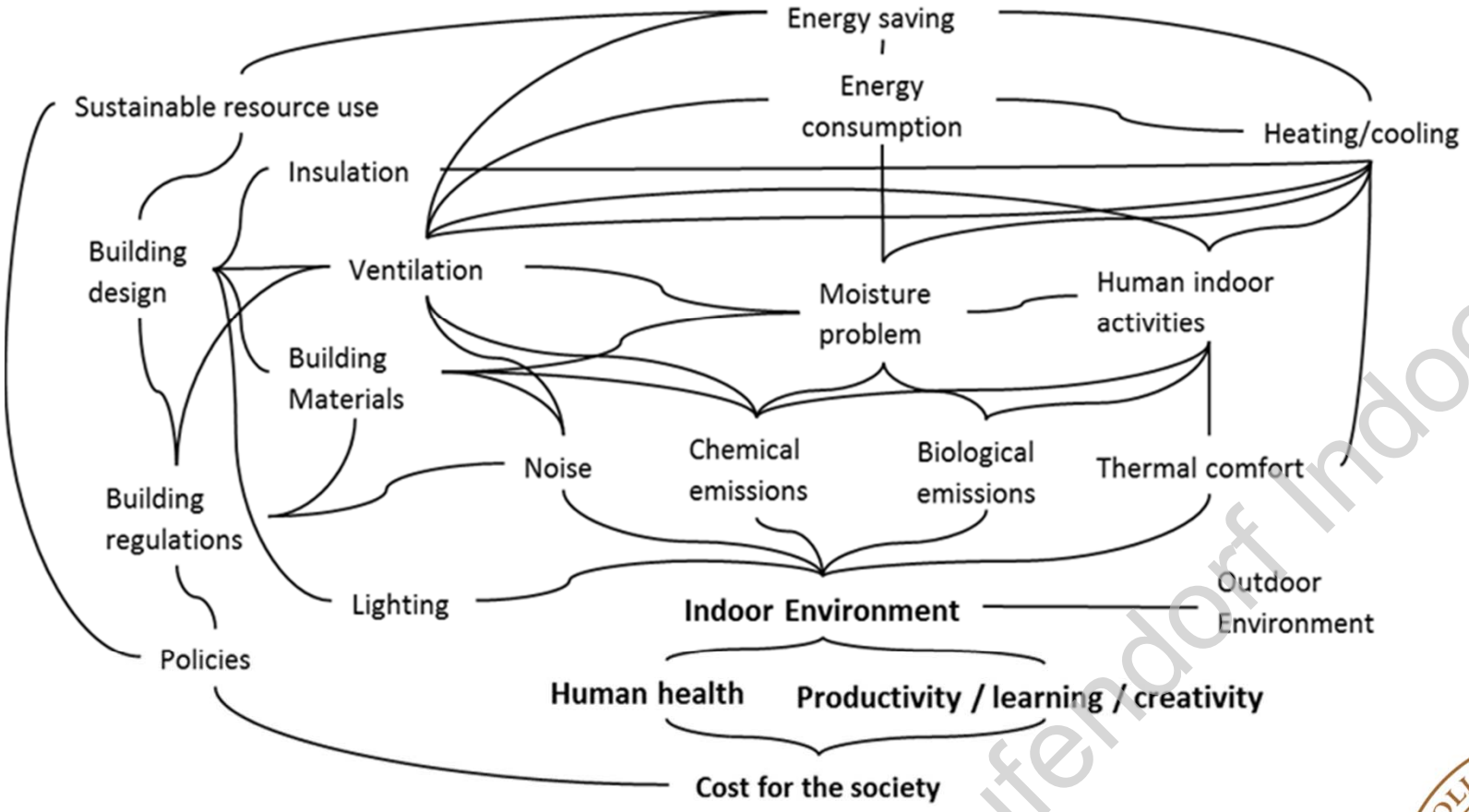
# The complexity and interaction of various factors occurring in indoor environments



# Healthy Indoor Environments - multidisciplinary theme

We come from variety of disciplines, covering medical, technical and behavioural aspects to enable a holistic approach to healthy indoor environments.

We represent different LU faculties: Engineering, Medicine, Social Sciences, Natural Sciences and Lund University Centre for Sustainability Studies (LUCSUS).

We aim to bridge different research areas in order to understand the complex interactions taking place in indoor environments.

# Healthy Indoor Environments theme

The overall goal is to understand how to create sound and sustainable indoor environments

- to promote human health and well-being,
- to promote productivity, creativity and enhance learning capability

At the same time

- to address new environmental stressors (due to changing climate)
- to address societal needs (aging population, increased sensitisation and prevalence of disease)
- to strive for the sustainable use of resources

# Members of the theme

# Members and areas of the expertise

| LU Scientist | Relevant expertise |
|---|---|
| Aneta Wierzbicka | Aerosols health effects, exposure in indoor environments |
| Birgitta Nordquist | Ventilation, heating systems, indoor climate, energy |
| Emilie Stroh | Medicine, health effects, indoor exposure |
| Yujing Li | Mould, system modelling |
| Lennart Larsson | Microbiology, chemistry |
| Roger Persson | Stress, subjective health, work and personality psychology |
| Barry Ness | Sustainability |
| Lars-Erik Harderup | Moisture, energy efficiency |
| Eja Pedersen | Environmental psychology and medicine |
| Kristian Stålne | Acoustics, adult development psychology, complexity |
| Anders Gudmundsson | Aerosols and risk assessment |
| Jonas Borell | Psychology, human behaviour, work organisation |
| Chuansi Gao | Thermal comfort, personal cooling/warming |
| Johan Stein | Building as a system |
| Christina Isaxon | Aerosols in indoor environments |
| Héctor Caltenco | Rehabilitation, universal design |
| Hillevi Hemphälä | Visual ergonomics, lighting |

# Project management

**<u>Project Leaders</u>:**

**Aneta Wierzbicka (coordinator) -** Ergonomics and Aerosol Technology

**Birgitta Nordquist -** Building Services

**Emilie Stroh –** Environmental and Occupational Medicine

**Yujing Li –** Building Materials

**<u>Guest Professor</u>:**

**Pawel Wargocki –** Technical University of Denmark

## **Advisory Board:**

| | |
|---|---|
| Maria Albin | Medicine, health effects, interdisciplinary studies |
| Elisabeth Dalholm Hornyaszky | Architecture and sustainability |
| Gerd Johansson | People – technology interaction, visualisation |
| Thorbjörn Laike | Environmental psychology, lighting |
| Mats Bohgard | Aerosols health effects |
| Håkan Tinneberg | Chemical exposures, health effects |
| Högni Hansson | Environmental sciences |
| Delphine Bard | Acoustics, health effects of exposure to noise |

## Activities of the theme will focus on:

1. Establishment of the cooperation platform

2. Identification of joint research initiatives

3. Dissemination of the theme outcomes to industrial representatives, practitioners and various stakeholder groups at final symposium and through white paper.

# Holistic Approach to Healthy Indoor Environments

**Some of the question that the group will address are**:

- Which methods can be used to investigate combined effects of multiple factors affecting our health, comfort, productivity and learning capability in indoor environments?
- What are the challenges and sustainability aspects of building design, operation, mitigation and adaptation in the light of changing climate and depletion of non-renewable energy sources?
- Defining the knowledge gaps of the exposure in indoor environments and its effects on health, comfort, productivity and learning capability
- Finding a balance between strive for energy use optimisation and provision of adequate ventilation to ensure health, well-being, productivity and learning capability of occupants

# Topics for the discussions - the world café

1. What are the real problems in indoor environments? List factors which you consider problematic (that bother you) in the indoor environments (home, workplace or public place) that affect your health? Please consider technical, organisational and social aspects.

2. What kind of solutions do we need in indoor environments? Give examples of successfully applied measures that improved problems in indoor environments. What are your ideas about how the problems could be solved?

3. What are the future challenges and obstacles in terms of sustainability for indoor environments? How should they be addressed?

4. How can we influence builders/constructing companies to build buildings that provide sound indoor environments? How and what can we require?

# Topics for the discussions - the world café

5. The gap between scientific findings and practise. What can be done to eliminate the gap?

6. Are there any relationships between human health and the indoor environment that have not been studied in detail? What needs enhanced focus to achieve healthy indoor environments?

7. Interactions taking place in indoor environments (people, building, technical installations, management) – does everything work as it should? What can be improved and how?

8. Indoor environments and the individual perspective, requirements, preferences and reactions of a human being. How can we address it?

# Healthy Indoor Environments theme

## Coming workshops

| | |
|---|---|
| 2014.11.27 | Bio-psycho-social aspects of health |
| 2014.12.18 | Energy savings in buildings – challenges for sustainability |
| 2015.01.29 | Comfort, preferences and behaviours – interaction between buildings and their users |
| 2015.02.26 | Tradition and innovation for indoor environments – problems, decisions and solutions. |

**http://www.eat.lth.se/indoor-environments**