

ECBCS Annex 49: The 2nd Working Phase Meeting

25th - 26th October, 2007

Musashi Institute of Technology, Yokohama, Japan

at the graduate school of Environmental & Information Studies,
Yokohama, Japan

Organized by:

**Fraunhofer Institute for Building Physics, Kassel and
Laboratory of Building Environment, Musashi Institute of
Technology, Yokohama**

Meeting Program

The main purpose of this meeting is to bring together what we have done since the 1st working phase meeting in Padua and to check if we are on the right track, and also to discuss further various issues to be solved aiming at the final goal of our Annex 49.

Furthermore, there will be an opportunity to exchange information on the latest developments and activities in the field of low-exergy systems.

Thursday, 25th October, 2007:

8:55 am Come together and coffee

9:00 am Opening and Welcome

- Welcome to Musashi Institute of Technology, Graduate School of Environmental & Information Studies, Yokohama
(*Masanori Shukuya, Musashi Institute of Technology, Japan*)
- Introduction of meeting participants and their main fields of research related to the Annex 49 topic (*all*)
- Objectives and structure of the Meeting
(*Dietrich Schmidt, Fraunhofer IBP, Germany*)

9:30 am Status of ECBCS Annex 49

Status of the Annex – check of tasks defined in last meeting
(*Dietrich Schmidt, Fraunhofer IBP, Germany*)

10:00 am Presentations and discussion of the working programme
by Subtasks

- Presentation of proposal of the working programme (30min each):
Subtask A: *Mia Ala-Juusela, VTT, Finland*,
Subtask B: *Ken Church, NRC, Canada*,
Subtask D: *Dietrich Schmidt, Fraunhofer IBP, Germany*

- Discussion (about 30 min) (*all*)
- 12:00 pm Lunch
- 1:00 pm Presentations and discussion of the working programme by Subtasks – continued
 Subtask C: *Gudni Jóhannesson, KTH, Sweden*
- Discussion (30min.) (*all*)
 - State of the art report to ECBCS ExCo
- 2:00 pm Coffee break
- 2:30 pm Technical presentations and discussions (20-30 min. each)
- Mia Ala-Juusela (VTT, Finland), *“Definition of Low-Ex Systems – Views of COSTeXergy group”*
 - Dietrich Schmidt (Fraunhofer IBP, Germany), *“Benchmarking of Low-Ex buildings”*
 - Herena Torio (Fraunhofer IBP, Germany), *“Exergy and the assessment of solar energy sources”*
 - Gudni Jóhannesson (KTH, Sweden), *“Strategies for low-ex buildings”*
 - Peter Op’t Veld (Cauberg-Huygen, The Netherlands), *“First ideas for total use of energy/exergy flows in dwellings”*
 - Someone, *“An interesting topic to be presented”*
- 5:00 pm Closing of the first meeting day – Short summary
- 7:00 pm Low-Ex Annex 49 Japanese Dinner at “Ukai-tei” in Saginuma

Friday, 26th October, 2007

- 9:00 am Update of the Annex 49 text and working program
(Dietrich Schmidt, Fraunhofer IBP, Germany)
- Meeting places for 3rd, 4th phase meetings to be decided
- Tasks until the next meeting (*all*)
- 11:45 am Closing of the 2nd working phase meeting
- 12:00 am Lunch
- 1:30 pm Workshop: Exergy-related research and practice at present

(15 min. each)

- Gudni Johannesson (KTH, Sweden), *“Modelling with applications to ground heat storage and indoor comfort”*
- Eri Kataoka (Musashi IT, Japan), *“Feasibility study on Low-ex cooling: a combination of solar control, radiant panels, and cool-exergy sources ”*
- Marco Molinari (KTH, Sweden), *“Exergy saving potential in buildings in HVAC and appliances”*
- Marcel Schweiker (Musashi IT, Japan), *“Understanding human-behavioural patterns to realize low-ex systems”*
- Yoshiko Hoshino (Musashi IT, Japan), *“Solar-exergy preheating for domestic hot-water supply system ”*
- Herena Torino (Fraunhofer IBP, Germany) , *“More efficient integration of renewable energies into buildings by exergy analyses”*
- Toshiya Iwamatsu (Musashi IT, Japan), *“Low-ex radiative cooling coupled with natural ventilation”*
- Peter Op't Veld(Cauberg-Huygen, The Netherlands), *“Dutch energy transition workgroup-development of the exergy concept line for dwellings”*
- Masaya Saito(SCU, Japan), *“Cognitive temperature scale for occupants’ self-environmental control”*
- Someone, *“An interesting topic to be presented”*

4:30 pm **Closing of the WS**

7:00 pm Japanese Dinner at “Sushi-kura” in Nakamachidai

Saturday, 27th October, 2007

8:15 am **Leave Hotel Atlas for Umejima, Adachi ward**

10:00 am **Visit a renovated office with low-ex system approach**

12:00 am **Lunch**

14:30 pm **Visit “Nihon Minka En (Open air museum of Japanese vernacular houses)” in Mukougaoka-yuen**

16:30 pm **Adjourn**

Sunday, 28th October, 2007

Those attending IAQVEC 2007 travel to Sendai.

Monday, 29th October, 2007

One of the IEA-related special sessions in IAQVEC 2007 (<http://www.iaqvec2007.org/>) to be held in Sendai city, 18:00-20:00, 29th October, 2007

IEA/ECBCS Annex 49: Low-Exergy Systems for High-Performance Buildings and Communities

The present building stock, whose total energy use accounting for more than one third of the present world's primary energy demand, has a substantial saving potential. In order for this to be realized in the coming future, "exergy" approach is promising both for the search of forgotten and new potentials in increasing the overall efficiency of the energy flow from the source to the sink and for the development of new types of active technology, which should well suit to the passive technology. This special session offers those who are concerned about or interested in the issues mentioned above an opportunity to know what the concept of exergy is, how it is applied for the built environment, what kind of low-exergy system components are available for the present and to be pursued, an introduction of an ongoing low-exergy project at a community level, and others. Everyone, either already familiar with or very new to the concept of exergy and also low-exergy approach, are all welcome to join us and to exchange the related information.

Chaired by Masanori Shukuya and Dietrich Schmidt

Masanori Shukuya (Musashi Institute of Technology, Japan)
Exergy concept and its application to the built environment

Dietrich Schmidt (Fraunhofer Institute for Building Physics, Germany)
Low-Exergy systems for high-performance buildings and communities

Bjarne W. Olesen (ICIEE, Technical University of Denmark, Denmark)
Thermal comfort requirement to realize low-ex systems

Gudni Johannesson (KTH-Royal Institute of Technology, Sweden)
Development of various low-ex system components and their integration

Peter Op'tVeld (Cauberg-Huygen R.I.B.V, the Netherlands)
The Mine Water Project Heerlen, the Netherlands – Low Exergy Practice

Ten-minute presentation each (50 minutes all together + 30 minutes for discussion)