



# Energy Conservation in Buildings and Community Systems

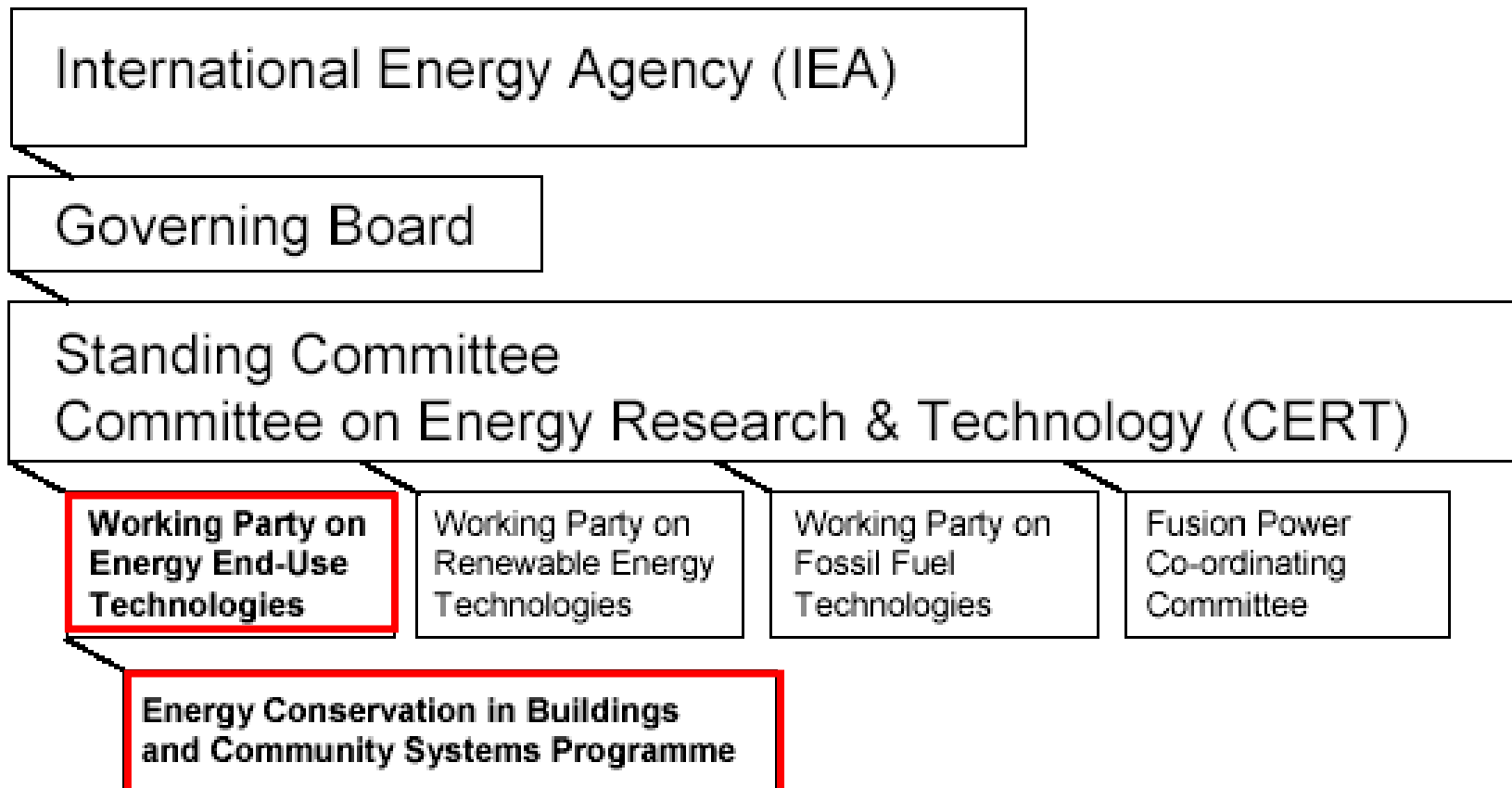
## ECBCS

### Werner Weiss

**AEE - Institute for Sustainable Technologies (AEE INTEC)**  
A-8200 Gleisdorf, Feldgasse 19  
AUSTRIA



# Structure





IEA ECBCS Workshop Graz, September 11th

## Participating Countries



### 24 Member Countries and the EC

|                   |                    |                    |
|-------------------|--------------------|--------------------|
| <b>Austria</b>    | <b>Germany</b>     | <b>Poland</b>      |
| <b>Australia</b>  | <b>Greece</b>      | <b>Portugal</b>    |
| <b>Belgium</b>    | <b>Israel</b>      | <b>Norway</b>      |
| <b>Canada</b>     | <b>Italy</b>       | <b>Sweden</b>      |
| <b>CZECH Rep.</b> | <b>Japan</b>       | <b>Switzerland</b> |
| <b>Denmark</b>    | <b>Netherlands</b> | <b>Turkey</b>      |
| <b>Finland</b>    | <b>New Zealand</b> | <b>UK</b>          |
| <b>France</b>     | <b>Norway</b>      | <b>USA</b>         |



IEA ECBCS Workshop Graz, September 11th

# Strategies of the Implementing Agreement



**The R&D strategies** apply to:

- residential,
- commercial, and
- office buildings,

and will **impact the building industry** in three aspects:

1. Design and Business Environment
2. Building Technologies and Systems
3. Outreach and Commercialisation



IEA ECBCS Workshop Graz, September 11th

## Primary Focus of ECBCS



- Performance indicators for sustainability, environmental impacts and GHG (greenhouse gas) reductions in buildings
- Energy reduction while improving indoor air quality
- Energy retrofit issues
- Advanced control systems
- Innovation and information technology to improve energy efficiency and environmental impacts in buildings.



## Ongoing Annexes



- 41 Whole Building Heat, Air and Moisture Response
- 42 The Simulation of Building-Integrated Fuel Cell and Other Cogeneration Systems
- 43 Testing and Validation of Building Energy Simulation Tools
- 44 **Integrating Environmentally Responsive Elements in Buildings**
- 45 **Energy-Efficient Future Electric Lighting for Buildings**
- 46 Holistic Assessment Tool-kit on Energy Efficient Retrofit Measures for Government Buildings



IEA ECBCS Workshop Graz, September 11th

## Ongoing Annexes



- 47 Cost Effective Commissioning of Existing and Low Energy Buildings
- 48 Heat Pumping and Reversible Air Conditioning
- 49 Low Exergy Systems for High Performance Built Environments and Communities
- 50 Prefabricated Systems for Low Energy / High Comfort Building Renewal



IEA ECBCS Workshop Graz, September 11th

# Building Communities-related Annexes



- Energy Systems and Design of Communities
- Local Government Energy Planning
- Energy Efficient Communities
- Advanced Local Energy Planning





# Ventilation



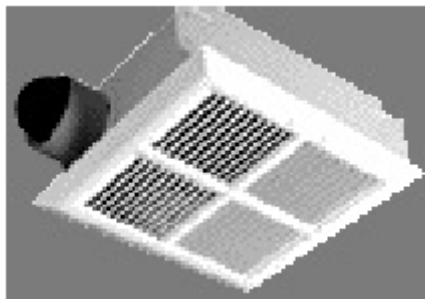
- Air Flow Patterns within Buildings
- Multizone Air Flow Modelling
- Energy Efficient Ventilation of Large Enclosures
- Evaluation & Demonstration of Domestic Ventilation Systems



# HVAC & Energy Management



- Building HVAC Systems Simulation
  - User Interfaces and System Integration
- Real Time HVAC Simulation
- Bringing Simulation Models to Engineers
- Computer-Aided Evaluation of HVAC System Performance



# Environment



- Environmental Performance
- Energy Related Environmental Impact of Buildings





IEA ECBCS Workshop Graz, September 11th

## Austrian Participation



### Annex 44 Integrating Environmentally Responsive Elements in Buildings



#### Operating Agent:

Per Heiselberg, Aalborg  
University , DK

#### Austrian Participation:

AEE INTEC      E. Blümel  
A. Seerig



IEA ECBCS Workshop Graz, September 11th

# Austrian Participation



## Annex 45

# Energy-Efficient Future Electric Lighting for Buildings



### Operating Agent:

Prof. Liisa Halonen, Helsinki  
University of Technology , Finland

### Austrian Participation:

Bartenbach Lichtlabor    W. Pohl (STL)



IEA ECBCS Workshop Graz, September 11th

## Austrian Participation



### Annex 50

## Prefabricated Systems for Low Energy - High Comfort Building Renewal

The Kick-off Meeting was held, March 27-28, 2006 in Denmark



Operating Agent:

Mark Zimmermann, EMPA

Austrian Participation:

AEE INTEC

E. Blümel



IEA ECBCS Workshop Graz, September 11th

## Further Information



<http://www.ecbcs.org>