IEA Energy in Buildings and Communities Technology Collaboration Programme Overview

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UK Alternate Delegate
EBC Executive Committee

10th November 2020

Programme (UTC / GMT time)

12:00 | Welcome by **Dr Takao Sawachi**, EBC Executive Committee Chair
12:05 | *Presentations - Part 1*

EBC Overview by **Prof Paul Ruyssevelt**, EBC Executive Committee Vice Chair
EBC Annex 5: Air Infiltration and Ventilation Centre by **Dr Peter Wouters**
EBC Annex 68: High Indoor Air Quality in Low Energy Buildings, **Prof Carsten Rode**
EBC Annex 69: Adaptive Thermal Comfort by **Prof Yingxin Zhu**
Q&A moderated by **Prof Paul Ruyssevelt**
13:20 | *Presentations - Part 2*

EBC Working Group on Cities and Communities by **Helmut Strasser**
EBC Annex 72: Life Cycle Impacts by **Rolf Frischknecht**
EBC Annex 74: Living Lab Platform by **Prof Karsten Voss**
Q&A moderated by **Prof Paul Ruyssevelt**
14:20 | Summary by **Prof Xudong Yang**, EBC Quality Assurance Sub-Committee Chair
14:30 | End of webinar

Scope of the EBC Programme

R&D Projects

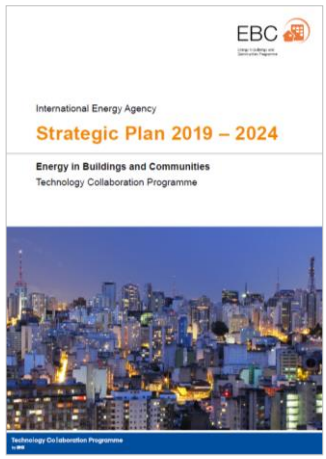
Knowledge Deployment and Demonstration

R&D Strategies

Buildings

Communities

EBC Mission



→ Energy efficiency is key

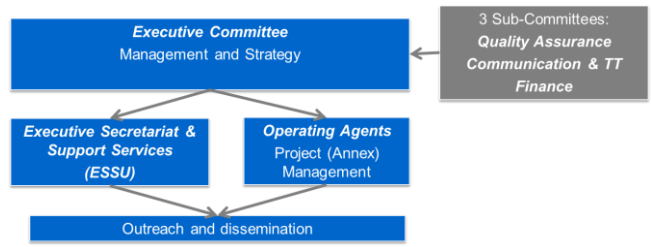
To support the acceleration of the transformation of the built environment towards more energy efficient and sustainable buildings and communities, by the development and dissemination of knowledge, technologies and processes and other solutions, through international collaborative research and open innovation.

27 Participating Countries

- Australia
- Austria
- Belgium
- Brazil
- Canada
- P.R. China
- Czech Republic
- Denmark
- Finland
- France
- Germany
- Ireland
- Italy
- Japan
- Republic of Korea
- Netherlands
- New Zealand
- Norway
- Portugal
- Singapore
- Slovenia
- Spain
- Sweden
- Switzerland
- Turkey
- UK
- USA
- India (pending)

IEA EBC Activities & Governance

- Energy research + innovation, development, demonstration and dissemination
- To date: 86 Annexes and 6 Working Groups
- Currently Operating: 20 Annexes and 3 Working Groups
- Annexes (projects) are 'Task Shared'
- Governance structure:



Scope of Research & Innovation Technology Readiness Levels

Level		Definition
TRL 9	System Operations	System proven and for ready full commercial deployment
TRL 8	System Commissioning	Actual system completed and qualified through test and demonstration
TRL 7	System Commissioning	Full-scale, similar (prototypical) system demonstrated in relevant environment
TRL 6	Technology Demonstration	Engineering / pilot-scale, similar (prototypical) system validation in relevant environment
TRL 5	Technology Development	Laboratory scale, similar system validation in relevant environment
TRL 4	Technology Development	Component and / or system validation in laboratory environment
TRL 3	Research to Prove Feasibility	Analytical and experimental critical function and / or characteristic proof of concept
TRL 2	Basic Technology Research / Research to Prove Feasibility	Technology concept and / or application formulated
TRL 1	Basic Technology Research	Basic principles observed and reported

Themes

Theme #1: Integrated planning and building design

Theme #2: Building energy systems

Theme #3: Building envelope

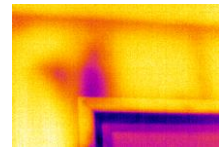
Theme #4: Community scale methods

Theme #5: Real building energy use

New Strategic Plan has refreshed and updated Themes

#1: Integrated planning and building design

- Integrated Solutions for Daylight and Electric Lighting (SHC Task 61 / EBC Annex 77)
- Assessing Life Cycle Related Environmental Impacts Caused by Buildings (Annex 72)
- Indoor Air Quality Design and Control in Low Energy Residential Buildings (Annex 68))
- Energy Flexible Buildings (Annex 67)– Energy Flexible Buildings Towards Resilient Low Carbon Energy Systems (Annex 82)



#2: Building energy systems

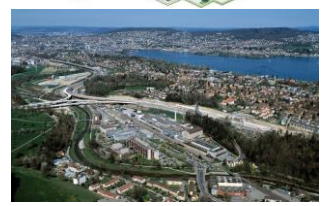
- Air Infiltration and Ventilation Centre AIVC (Annex 5)
- Supplementing Ventilation with Gas-phase Air Cleaning, Implementation and Energy Implications (Annex 78)
- Resilient Cooling (Annex 80)
- Indirect Evaporative Cooling (Annex 85)
- HVAC Energy Calculation Methodologies for Non-residential Buildings (Working Group)
- Building Energy Codes (Working Group)

#3: Building envelope

- Long-Term Performance of Super-Insulating Materials in Building Components and Systems (Annex 65)
- Deep Renovation of Historic Buildings Towards Lowest Possible Energy Demand and CO2 Emissions (SHC Task 59 / EBC Annex 76)

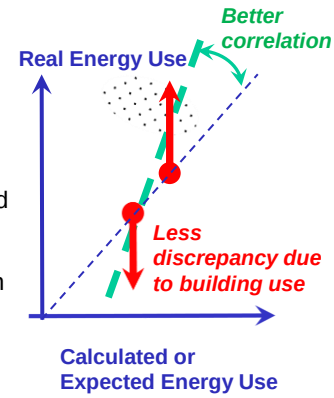
#4: Community scale methods

- Cost-effective Building Renovation at District Level Combining Energy Efficiency and Renewables (Annex 75)
- Towards Net Zero Energy Public Communities (Annex 73)
- LowEx Communities - Optimised Performance of Energy Supply Systems with Exergy Principles (Annex 64)
- Cities and Communities (Working Group)
- Positive Energy Districts (Annex 83)



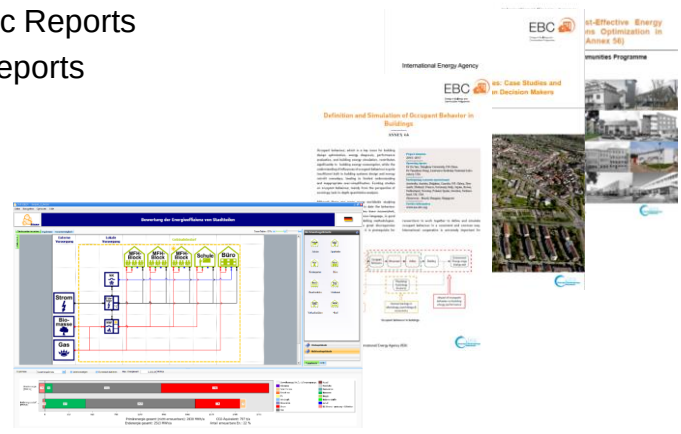
#5: Real building energy use

- Adaptive Thermal Comfort in Low Energy Buildings (Annex 69)
- Building Energy Epidemiology: Analysis of Real Building Energy Use at Scale (Annex 70)
- Building Energy Performance Assessment Based on In-situ Measurements (Annex 71)
- Occupant-Centric Building Design and Operation (Annex 79)
- Data-Driven Smart Buildings (Annex 81)



Project Results

- Full Scientific Reports
- Summary Reports
- Factsheets
- Handbooks
- Tools



Dissemination & Outreach

www.iea-ebc.org

- Scientific Reports (website and bookshop)
- Newsletter
- Annual Report
- Conferences / seminars
- Demonstration
- AIVC

Outcomes and Achievements 2014 - 2019

- 31 guides for practitioners and 45 technical reports were produced by 14 Annexes, and 171 conferences / workshops were organized with 7,915 participants
- Reliable quantitative information on energy saving and realistic solutions with cost effectiveness have been approached aggressively and produced under the slogan of “real building energy use”
- Outputs are utilised for international and national standardization works
- Outputs are utilised for design and construction practices, as well as for building product development

Further Information

Thank you

www.iea-ebc.org
twitter.com/IEA_EBC
www.linkedin.com/groups/12210896

Email list sign-up
www.iea-ebc.org/publications/ebc-news

EBC TCP and the International Energy Agency (IEA)

- The International Energy Agency (IEA) is an intergovernmental organisation that works to shape a secure and sustainable future for all, through a focus on all fuels and all technologies, and analysis and policy advice to governments and industry around the world.
- To facilitate global cooperation on energy technology, the IEA created the Technology Collaboration Programme (TCP). Today, the EBCTCP is one of 38 TCPs each focused on a different topic. Together, they connect thousands of experts across government, academia and industry in 55 countries dedicated to advancing energy technology research and application.
- The EBC TCP is functionally and legally autonomous from the IEA. Views and findings of the EBC TCP do not necessarily reflect those of the IEA.