EBC

Energy in Buildings and Communities Programme

Factsheet

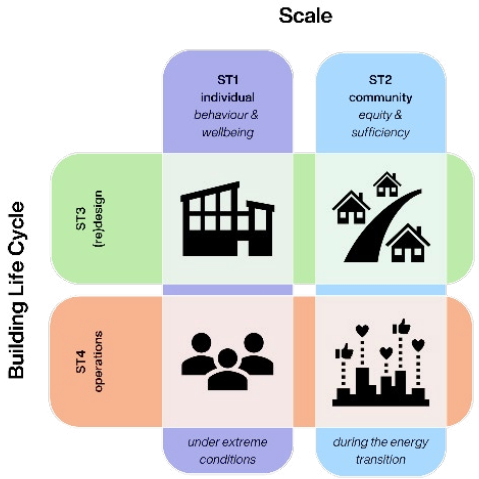
Human-Centric Building Design and Operation for Changing Climates

EBC ANNEX 95

Modern trends, particularly post-COVID-19, such as teleworking, co-working, and home-sharing have led to diverse building occupancy patterns, differing from standard schedules. Moreover, with rising global expectations for comfort and the introduction of various new technologies, there is a pressing need to re-evaluate how humans, in their various roles, are integrated into building design and operation and how energy use patterns are affected. As such, this project is focusing on four key areas of intersection:

1) human-building interactions at the individual scale,
2) human-building interactions at the community scale,
3) building (re)design, and
4) building operations.

Despite some apparent topical overlap with ongoing and potential new projects, there is one critical distinction of this project: humans. This project builds upon the work completed in the EBC project 'Annex 66: Definition and Simulation of Occupant Behaviour in Buildings' and the



The project is organized into four interdependent and interacting subtasks and two committees, recognizing the importance of integrated and interdisciplinary research. The committees are for 'Diverse Participation & Representation' and 'Knowledge Sharing & Best Practices'.
Source: EBC Annex 95

PROJECT OBJECTIVES

1. gaining knowledge about how building occupants around the world respond to changing climate conditions, particularly extreme events, and how they are currently adapting to the energy transition, including new technologies and programs
2. establishing working definitions and key performance indicators to evaluate sufficiency, equity, and resilience in buildings
3. developing recommendations for building design and retrofit which address principles of resilience, sufficiency, and equity for a changing climate
4. examining the role that behavioural nudging of building operation can play in helping to keep occupants safe in extreme events and comfortable during normal operation
5. exploring how communities and social infrastructure can establish community and individual resilience in the face of climate change

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INTERNATIONAL ENERGY AGENCY

The International Energy Agency (IEA) was established as an autonomous body within the Organisation for Economic Co-operation and Development (OECD) in 1974, with the purpose of strengthening co-operation in the vital area of energy policy. As one element of this programme, member countries take part in various energy research, development and demonstration activities. The Energy in Buildings and Communities Programme has co-ordinated various research projects associated with energy prediction, monitoring and energy efficiency measures in both new and existing buildings. The results have provided much valuable information about the state of the art of building analysis and have led to further IEA co-ordinated research.

EBC VISION

By 2030, near-zero primary energy use and carbon dioxide emissions solutions have been adopted in new buildings and communities, and a wide range of reliable technical solutions have been made available for the existing building stock.

EBC MISSION

To accelerate the transformation of the built environment towards more energy efficient and sustainable buildings and communities, by the development and dissemination of knowledge and technologies through international collaborative research and innovation.

EBC project 'Annex 79: Occupant-Centric Building Design and Operation'. It seeks to develop new knowledge, technologies, and policy recommendations to design and operate buildings that allow humans to thrive in the face of climate change and the corresponding global movements (e.g. energy transition) seeking to adapt to it.

The following project deliverables are planned:

- Knowledge / theory / models (e.g. definitions, behaviour and comfort theory, laboratory studies)
- Best practices guidelines, simplified tools and workflows, case studies and demonstration projects
- Novel concepts (e.g. occupant-centric controls, building interfaces)
- Code, standard, and policy recommendations (e.g. occupant-centric controls in building codes, thermostat interface standard)

Project duration

Ongoing (2024 - 2028)

Operating Agent

Dr Liam O'Brien, Carleton University, CANADA
Tel: +1 613 520 2600 ext. 8037
Email: liamobrien@cunet.carleton.ca

Dr. Julia Day, Washington State University, USA
Tel: +1 425 260 7469
Email: julia_day@wsu.edu

Dr. Zoltan Nagy, University of Texas Austin, USA
Tel: +1 512 232 6793
Email: nagy@utexas.edu

Marianne Touchie, University of Toronto, CANADA
Tel: +011 416 668 6408
Email: marianne.touchie@utoronto.ca

Participating countries (provisional)

Australia, Austria, Belgium, Brazil, Canada, P.R.China, Denmark, Finland, France, Germany, Ireland, Italy, Norway, Singapore, Sweden, Switzerland, the Netherlands, Türkiye, UK, USA

Further information

www.iea-ebc.org

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