



# HUMAN-CENTRIC BUILDINGS FOR A CHANGING CLIMATE

**As global climate change intensifies, the role of humans in shaping building performance has never been more critical. The Human-Centric Buildings Network (HCB Network) takes a human-centered approach to research on building design, operation, and energy use, ensuring that buildings are resilient, energy-efficient, and comfortable for occupants.**

## OVERVIEW

The HCB Network (a joint initiative by the International Energy Agency Energy in Building and Communities program (IEA EBC Annex 95) and the Users Technology Collaboration Program (TCP); 2024-2029) is an international research network that focuses on understanding and enhancing the relationship between humans and buildings in the context of climate change and the energy transition.

The HCB Network recognizes that, as buildings become more efficient, the behavior and actions of occupants—whether they are tenants, operators, or designers—play an increasingly significant role in building energy performance and comfort. Further, this relationship is shifting dramatically with our changing climate.

The HCB Network emphasizes that the energy transition isn't just about technology; it's about people. It calls for placing humans at the core of building solutions, rather than treating them as a cause of inefficiencies.

Following the large critical mass of its predecessor, IEA EBC Annex 79, the Network will involve approximately 100 leading researchers from over 20 countries. Critically, the Network involves a wide variety of disciplines and professions, thus ensuring these challenging topics are robustly researched for maximal impact. Participation in the Network means collaboration at the cutting edge.

## KEY OBJECTIVES

The Network is set to redefine the role of humans in sustainable building practices. By integrating cutting-edge research with real-world applications, it aims to create buildings that are not only climate-resilient but also places where people can comfortably, productively, and healthily live, work, and thrive—no matter the challenges ahead (climate change, extreme events, energy poverty). Ensuring equity to all people is a central pillar of the Network. Buildings that exhibit the above properties should be accessible to all people.

From the outset of the HCB Network, there has been a concerted effort to achieve a more representative membership base. Importantly, the drive for increased diversity has spanned both professional backgrounds, e.g., research disciplines, industries, government agencies, etc., as well as demographic backgrounds, e.g., gender, race/ethnicity, nationality, etc.

## AREAS OF INQUIRY

**Adaptation to Climate Change:** Develop buildings that can adapt to future climate scenarios while providing comfort and energy efficiency.

**Human-Centered Design:** Explore how people interact with buildings and develop design strategies that enhance human well-being in both every day and extreme conditions.

**Energy Transition Integration:** Investigate the role of building stakeholders in adopting and adapting to new energy technologies and behaviors.

**Behavioral Insights:** Understand how occupants' behaviors impact energy use and indoor comfort, particularly in response to climate-induced extreme events.

## KEY STAKEHOLDERS

**Occupants:** Improved well-being, health, and comfort through energy-efficient, adaptive building environments.

**Policymakers:** Guidelines and recommendations that influence building codes and energy policies.

**Designers and Architects:** New methodologies and tools for designing occupant-centric, climate-adaptive buildings.

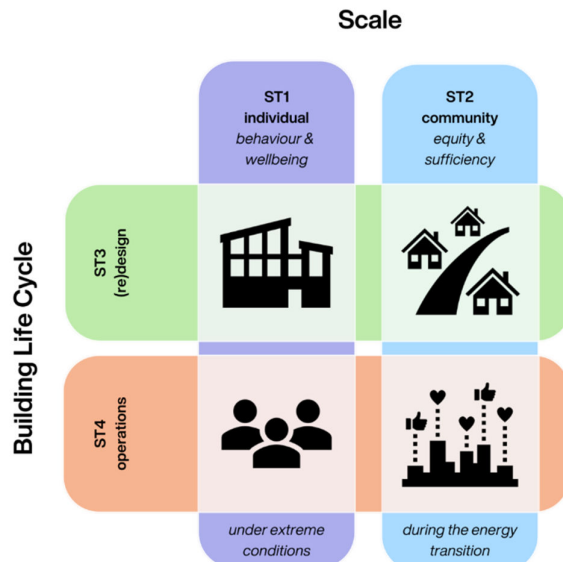
**Energy Professionals:** Insights into how human behavior intersects with energy consumption, leading to more effective energy-saving strategies.

## NETWORK STRUCTURE

The HCB Network is divided into four subtasks, as depicted in the figure at right. Within each subtask is a series of activities performed by smaller groups of researchers.

## GLOBAL RELEVANCE

The HCB Network builds on successful international collaborations including IEA Annexes 66 and 79, both of which provided groundbreaking insights into occupant behavior and building performance. With a network of researchers from over 28 countries, the HCB Network brings a diverse and multidisciplinary approach to tackling the challenges of climate change in the built environment. The HCB Network's holistic approach addresses both Global North and Global South challenges, from energy affordability and building inefficiency in wealthier nations to lack of access to modern energy in developing regions.



## LOGISTICS

Involvement in IEA projects is self-funded and requires active participation in at least one activity and a minimum commitment of six person-months per year for each country (which is typically divided by numerous researchers and significantly overlaps existing student/professional activities). The primary cost of participation is international travel to meetings and time to perform research between meetings. The HCB Network will meet twice annually for two days – one meeting in person (with remote option) and the other online. To officially participate, your country of study/employment should be a member of IEA EBC or Users TCP (refer to those websites for lists). Contact us via the website below for information about exceptions or other questions.

**INTERESTED IN MORE INFORMATION OR JOINING?** <https://annex95.iea-ebc.org>