

Research

Research domains



Well-being and behaviours

Improve human health and comfort by optimising the quality of the indoor environment and influencing behaviours in a positive way.



Interactions and design processes

Understand and structure dialogue among stakeholders in the building lifecycle to develop the tools to design, model, and operate buildings.



Construction technologies

Monitor resource efficiency and accelerate processes of change in construction.



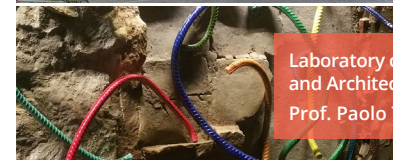
Energy systems

Develop smart energy-efficient systems and technologies, improve their management, and anticipate legal and economic impacts.

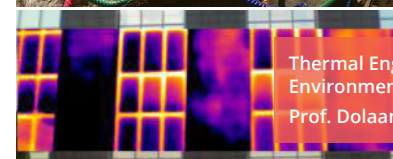
Research groups



Structural Xploration Lab (SXL)
Prof. Corentin Fivet



Laboratory of Construction
and Architecture (FAR)
Prof. Paolo Tombesi



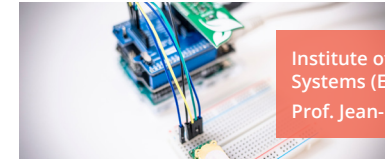
Thermal Engineering for the Built
Environment Laboratory (TEBEL)
Prof. Dolaana Khovalyg



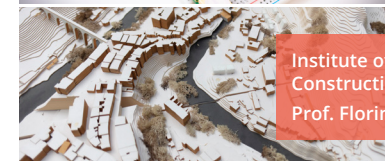
Human-Oriented Built Environment Lab
(HOBEL)
Prof. Dusan Licina



Building Innovation Research and Integration
Support Group (Building2050)
Dr. Sergi Aguacil



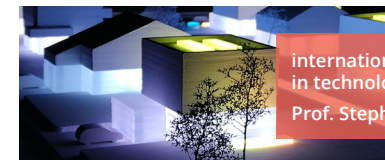
Institute of Applied Research in Energy
Systems (ENERGY)
Prof. Jean-Philippe Bacher



Institute of Architecture: Heritage,
Construction and Users (TRANSFORM)
Prof. Florinel Radu



Institute of Construction and Environmental
Technology (ITEC)
Prof. Daia Zwicky



international institute of management
in technology (iimt)
Prof. Stephanie Teufel



Human-IST Institute and Human-Building
Interaction
Prof. Denis Lalanne



Institute for Swiss and International
Construction Law
Prof. Jean-Baptiste Zufferey



Smart Living Lab

Research and development centre
for the future of the built environment



Who we are



The Smart Living Lab is a research and development centre for the future of the built environment. Its activities are motivated by the well-being of its users, energy efficiency, and digital transformation.

The Smart Living Lab brings together the combined expertise of the EPFL, the School of Engineering and Architecture of Fribourg (HEIA-FR), and the University of Fribourg (UNIFR) in the areas of construction technologies, well-being and behaviours, interactions and design processes, and energy systems for the built environment.

This living lab hosts interdisciplinary research projects involving users and companies as well as researchers, and is located in the blueFACTORY innovation site at the heart of the Switzerland Innovation Park (SIP) Network West EPFL. The construction of an experimental building for the Smart Living Lab on this site is slated for 2021.

Research facilities



Smart Living Lab research facilities provide various opportunities for experimentation in real conditions in the blueFACTORY innovation site in Fribourg.

Atelier PopUp

A 900 m² construction and experimentation space devoted to teaching and research.

Big Building Data (BBData)

A secure digital platform for storing and analysing building-related data.

Blue Hall

An office space with different systems for measuring energy consumption, with sensors for monitoring indoor environmental quality.

Controlled Environments for Living Lab Studies (CELLS)

A pair of similar rooms used for comparative studies on comfort conditions, with variable levels of automation.

NeighborHub

The Swiss solar house that won the US Solar Decathlon is a research prototype to explore various aspects of energy management, user comfort and user interaction.

Renewable Energy Integration Lab (LIRE)

A full-scale development platform for integration of various renewable energy sources and energy storage for a whole building.

Smart Living Lab Building

The Smart Living Lab's experimental future building, which will host many research activities.

Partnerships



Smart Living Lab projects are often carried out in collaboration with both private and public partners. With access to unique equipment and the most advanced knowledge, these partners facilitate innovations stemming from research and technology transfer, contributing to the advancement of science.

Becoming a Smart Living Lab partner lets you:

- fund high-potential research for the future of the built environment.
- implement a specific project with Smart Living Lab research groups.
- get involved in research projects by conducting case studies, collecting data, and providing practical expertise.
- develop a strategic partnership, potentially working at blueFACTORY.
- use Smart Living Lab research facilities for an innovation project.
- make use of the visibility and network of the Swiss and international innovation ecosystem.

Flagship project



Construction of the experimental Smart Living Lab Building should start at the blueFACTORY site in Fribourg in 2021. This ambitious, pioneering project in the efficient use of resources is 30 years ahead of time when it comes to implementing Switzerland's energy and environmental targets for 2050 and applying the concepts of the 2000-Watt Society.

The Smart Living Lab and Bluefactory Fribourg-Freiburg SA have prepared a blueprint for the new building, using a collaborative *mandat d'études parallèles (MEP)*. A multidisciplinary catalyst for progress, this 'living lab' should prove to be an ideal experimental tool for conducting research in real conditions.

With around 5000 m² of floor space and 130 work stations, the new Smart Living Lab Building is designed to be durable yet adaptable, facilitating research and improving performance over the whole building lifecycle.