



ALMA MATER STUDIORUM  
UNIVERSITÀ DI BOLOGNA

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## ENERGY EFFICIENT BUILDING

*A way to fight against climate change effects and to improve cities resilience and people comfort.*

The University of Bologna is deeply involved in studying and implementing the role of energy efficient building in framing the future of climate change mitigation and adaptation. The focus is on urban, peri-urban and rural areas and on existing, ancient and new buildings.

## Main research fields

- Innovative procedures and systems for renewable energies exploitation in building
- Innovative technologies for achieving energy efficient, resilient and smart buildings
- New paradigm of intervention of cultural/artistic buildings retrofitting
- Methods and understanding of buildings thermal effects on urban microclimate
- Building envelopes' add-ons and prefabricated plug and play systems. BIM (Building Information Modeling) application on buildings and research on scenario/simulation based on decision making processes
- Integration of energy efficient buildings paradigm in existing built environment
- Smart Home paradigm and integration on the district perspective
- Indoor monitoring for energy comfort in different typologies of buildings (schools, offices, residential, etc.)
- Energy occupant behaviour in urban planning, energy efficiency awareness and the role of policy instruments to tackle the user-related impact

## HIGHLIGHTS

The **OFF\_line Laboratory of Innovation and Energy Efficiency** deals with: study of materials, components, traditional and innovative building technologies; sustainability and renovation of existing buildings; smart, circular and green districts; retrofitting methods with focus on energy efficiency of building over-cladding; definition of packages of pre-assembled high energy and environmental performance solutions; LCA approach.

The **Interdepartmental Centre for Applied Research on Buildings and Construction (CIRI-EC)** promotes research co-operation and innovation with industries and small/medium enterprises by means of applied research on buildings and construction technologies, technological support, knowledge transfer and business development.

## European Projects

[e-SAFE](#) - Energy and Seismic affordable renovation solutions H2020

[Hybrid-BioVGE](#) - Hybrid Variable Geometry Ejector Cooling and Heating System for Buildings Driven by Solar and Biomass Heat H2020

[DRIVE 0](#) - Driving decarbonization of the EU building stock by enhancing a consumer centred and locally based circular renovation process H2020

[TripleA-reno](#) - Attractive, Acceptable and Affordable deep Renovation by a consumers orientated and performance evidence based approach H2020

[Pro-GET-one](#) - Proactive synergy of inteGrated Efficient Technologies on buildings' Envelopes H2020

[ABRACADABRA](#) - Assistant Buildings' addition to Retrofit, Adopt, Cure And Develop the Actual Buildings up to zeRo energy, Activating a market for deep renovation H2020