

Driving Sustainable Cities for the Future

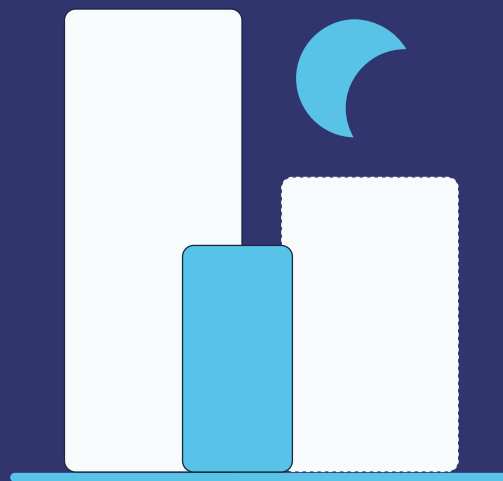
Addressing challenges and driving progress with Services 3, 4 and 5

BUILDSPACE offers five different Services that aim to enhance building and urban sustainability, making cities more resilient to climate risk.

This factsheet will focus on Services 3, 4 and 5, that address the **challenges of urban resilience** to climate change **on a city level**, assessing different scenarios and solutions.

Synergies with Copernicus

BUILDSPACE integrates Copernicus core services, particularly the Climate Change Service (C3S) and the Land Monitoring Service (CLMS), into the design and implementation of city-level decision-support services, thereby enhancing their scientific robustness, interoperability, and replicability across Europe.



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Partnerships



Key challenges: Assessing climate change impacts on urban building energy demand while evaluating retrofitting strategies to boost efficiency. Calculating solar potential to reduce reliance on conventional energy.

Main features

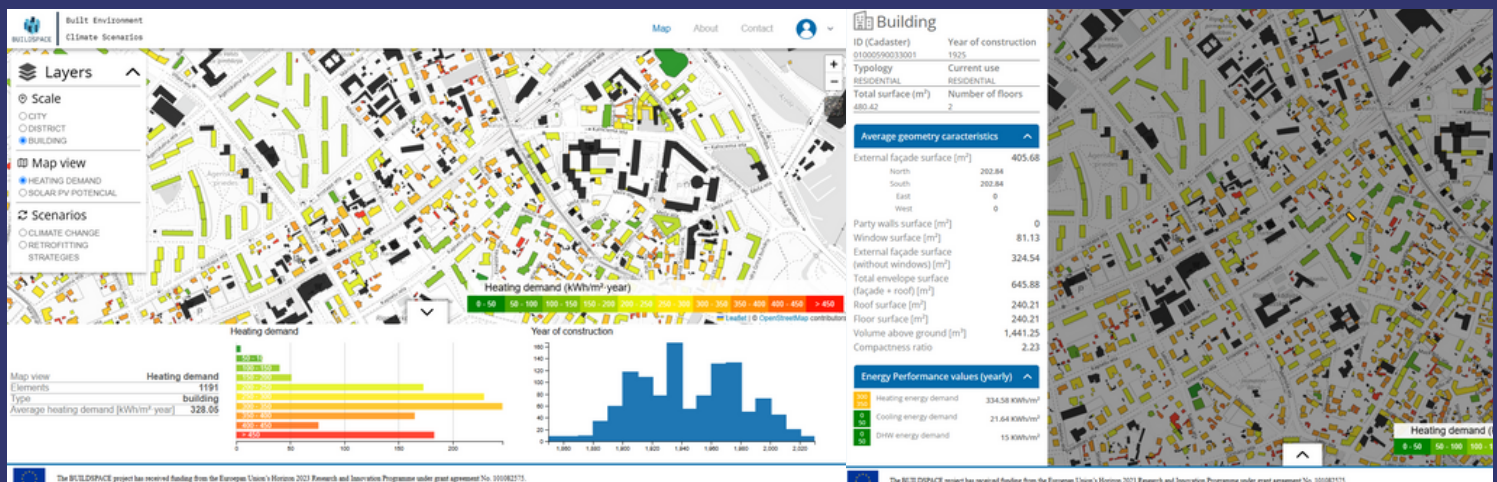
Interactive maps and data panels for visualizing building and district level energy demand

Energy demand estimation for heating, cooling and domestic hot water of residential buildings

Projections of energy demand under different climate change scenarios and time frames

Simulation of retrofitting strategies to evaluate energy efficiency gains

Mapping of solar energy potential to support clean energy integration



Applicability

- Municipalities can identify renovation hotspots and allocate available funding, including to boost energy communities.
- Companies can target solar-ready or upgrade-needy buildings in line with city goals.
- Homeowners can assess efficiency, test retrofits, and adopt passive measures or solar PV solutions.

Social Impact

- Promotes energy efficiency and renewable energy adoption, reducing carbon footprints.
- Empowers citizens to invest in energy-saving solutions, accelerating the transition to a sustainable and low-carbon future.

Service 4

Urban Heat Analysis and Resilience



Partnerships



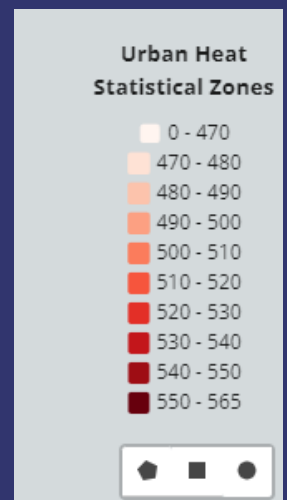
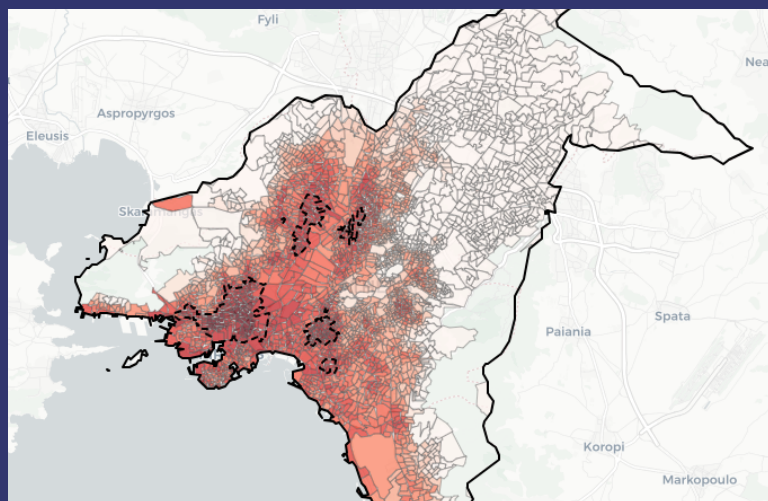
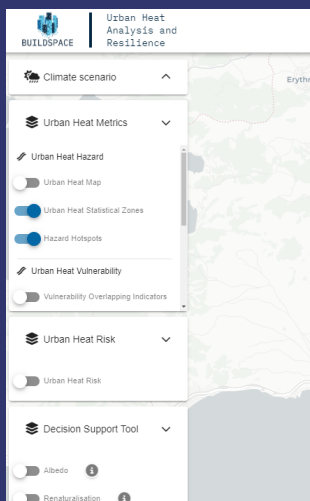
Key challenges: Detecting areas most at risk to urban heat. Assisting in decision making to detect, and provide mitigation and adaptation solutions to priority areas for intervention.

Main features

Urban Heat Risk map, vulnerability map, exposure map and hazard map

Building's Energy Demand map for cooling and heating

Decision Support maps focused on mitigation and adaptation, with downloadable GIS maps



Applicability

- Supports effective cooling strategies and informs urban planning and policy.
- Highlights risk-prone areas, raising awareness and guiding targeted projects.

Social Impact

- Analyzing urban heat with climate, socioeconomic, and demographic data
- Identifying vulnerable communities and raising awareness of heat and climate risks



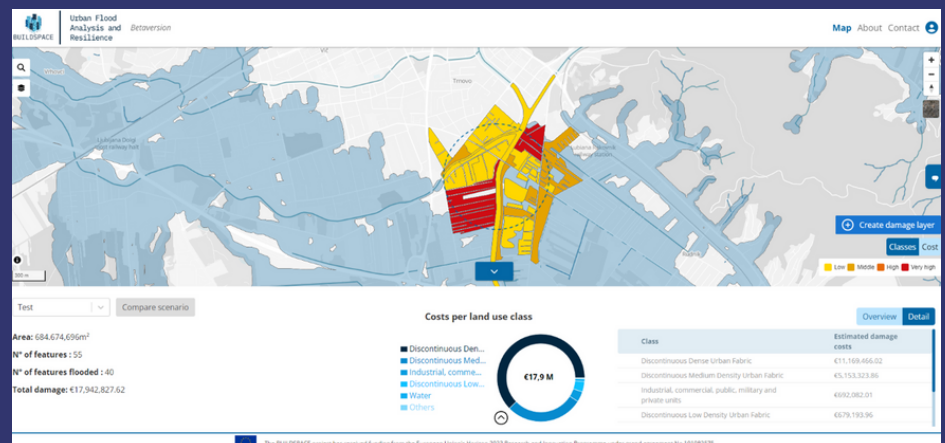
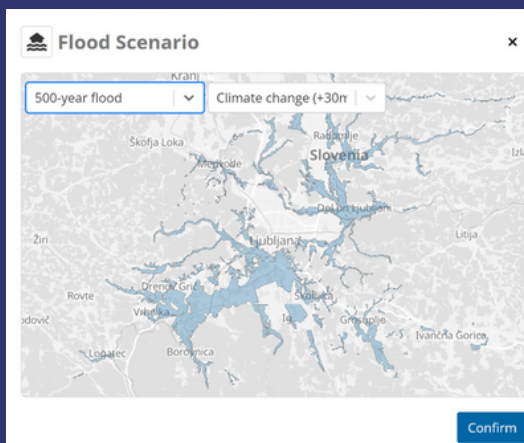
Partnerships



Key challenges: Understanding urban flood resilience, addressing flood damage in relation to different fluvial and pluvial flood scenarios, under future and current climate change scenarios. Evaluation of retrofit strategies using blue-green infrastructure measures.

Main features

User-friendly web tool with interactive maps and data visualisations	Flood damage and blue-green infrastructure impact calculation for different buildings and land use features
Projections of future urban flood vulnerability	Evaluation of retrofitting strategies and rainwater management gains
Applicability and usability in all major European urban areas	



Applicability

Homeowners can access building vulnerability data, simulate floods, and compare different scenarios for their building and its surrounding urban area. Policy makers can visualize impacts, identify hotspots, and direct adaptation funding. Urban planners can prioritize critical zones and design blue-green infrastructure strategies.

Social Impact

- Promoting the adoption of green solutions to urban flooding and contributes to urban resilience to climate change.
- Empowering key stakeholders to invest in nature-based solutions, stimulates transition to integrated urban stormwater management.