Circular Economy Factsheet

IURC
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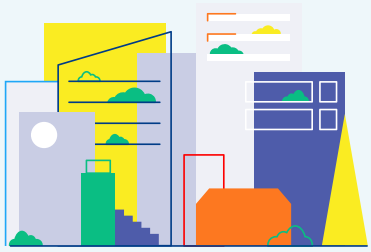
Circular innovations in the built environment

From think tanks to business sector practitioners, policy makers and local governments, innovations are underway to influence more sustainable building practices to deliver social, environmental and economic benefits and meet the needs of growing and evolving urban populations. Cities hold a unique influential role in this transformation despite known challenges. There is a wide array of tools and resources available to support their efforts in this area.



Prioritizing existing buildings for people and planet

Applying sufficiency principles to address housing needs can be done through an array of strategies. European case studies have demonstrated that reusing and retrofitting existing buildings can avoid significant greenhouse gas emissions and achieve up to 60% resource savings compared to new construction. This approach also enables the delivery of adequate housing, unlocks investment opportunities, and enjoys higher public acceptance than often anticipated.

Sufficiency is defined as: "... a set of measures and daily practices that avoid demand for energy, materials, land and water, while delivering human well-being for all within planetary boundaries" (IPCC AR6 WGIII, p. 957).

Countries like Belgium, France, Germany, Poland and Ireland are already implementing diverse mechanisms to encourage and support reuse and retrofitting of buildings to meet housing needs. These efforts yield multiple co-benefits: conserving scarce resources, preserving cultural and historical heritage, reducing the need for new infrastructure, fostering community and inter-generational ties, revitalizing neighbourhoods and regions, and creating more affordable housing options.

Examples of sufficiency initiatives from Europe:

COUNTRY	INITIATIVE	MECHANISM	CURRENT OUTCOMES	ESTIMATED POTENTIAL (max)	
				Avoided new construction	Avoided embodied emissions
	1TOIT2AGES Brussels and Wallonia	Mobilise 'invisible living space'	Facilitated 604 matches in 2023	26.800 m^2	15.000 tCO_2
	Plan lutte contre les logements vacants National	National strategy to map vacancies and making them habitable	1,1 Mio vacant buildings; over 6.000 "exited" vacancy status	20.190.000 m^2	9.500.000 tCO_2
	Aus Alt mach 2 .. Oder mehr Pilot project Ravensburg	Premium for consultation for reconstruction of single-family buildings	A quarter of homeowners considers a reconstruction	23.526.000 m^2	11.200.000 tCO_2
	Empty Spaces for affordable houses National	Mapping vacancies and making them habitable	Estimates of 215.000 usable units after renovation	12.106.000 m^2	5.750.000 tCO_2
	Parkwest Dublin 12 The Plaza Office building in Dublin	Conversion of offices into housing units	86 social housing units created	5.800 m^2	2.759 tCO_2 (- 82% less embodied carbon compared to new built)

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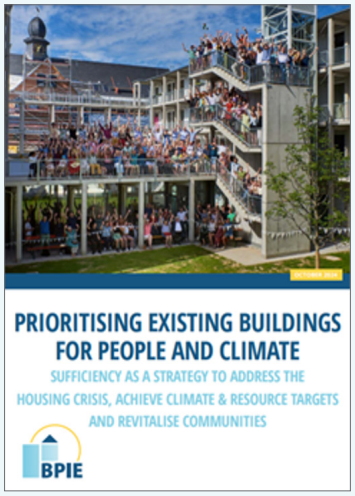
Recommendations for sufficiency in the building sector

1. Make best use of vacant or underoccupied buildings by collecting data.
2. Prioritize and incentivize the preservation, repurposing and reuse of the existing building stock ahead of new construction.
3. Support experimentation of sufficiency initiatives, exchange of experiences and awareness raising.
4. Use synergies with other policy fields and forge new alliances.
5. Invest in research on the qualitative and quantitative impacts of sufficiency initiatives.



Insights from the city of Atlanta

- We are starting to implement circular approach in the sector.
- Focus is on how to use data to manage the built environment.
- Retrofitting and using existing infrastructure is becoming an appealing option due to current economic situation.
- Can use spaces in different ways than originally designed for.
- Diverting materials from waste stream.
- Building retrofits help create community buy-in.

Policies and standards for circularity in the built environment

The pursuit of Circularity in the Built Environment (CBE) is a multifaceted undertaking that must adapt to market conditions while embracing societal goals and incorporating technical norms. Navigating the increasing array of national and local building codes, energy and green building policies, deconstruction policies, voluntary program certifications, green procurement and other types of guidance is a time-consuming challenge for architects, project developers and other practitioners, not to mention market readiness for such innovations. Cities can play a useful role in providing one-stop shop or consolidating the guidance for the sector.

Some cities are leading the way such as Calgary's 2021 downtown development incentive program which offers financial incentives for building conversions to housing. Vienna is implementing its bold vision for site and use-appropriate planning and construction for maximum resource conservation from 2023 onward and 80% reuse or recycle rate for materials from demolished buildings by 2050.

The **Carbon Risk Real Estate Monitor (CCREM) Risk Assessment** is a useful tool that helps asset owners and investors to understand the carbon risk inherent ton their real estate portfolio. The tool also benchmarks the portfolio against CCREM pathways and peers. The results can be used to plan and prioritize retrofits, conversions and adaptive reuse strategies.

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Guidance, from technical standards to policies focuses on practices from cradle-to-grave: **circular design, construction, deconstruction** and **life extension strategies**.
Despite challenges, many examples of new construction techniques and collaborations are emerging from which we can all learn.

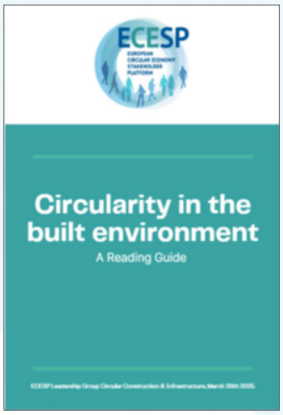
Successful design approaches incorporate:

- Simple configurations.
- Clean & uncontaminated materials.
- Componentized construction.
- Design for disassembly.
- Planning for reverse logistics.

Navigating the circular built environment – a reading guide

The European Circular Economy Stakeholders Platform (ECESP) (#CEstakeholder) is an active platform accessible to all for exchanging and learning from practices. Their collective work features many case studies, detailed reports for cities, policy makers and the business community. Regular #EUCircularTalks feature leading practitioners from many sectors.

The ECESP released in 2025 a comprehensive guide to resources addressing circularity in the built environment.
It covers:



- Introduction.
- Circular design principles.
- Materials and resource efficiency.
- Standardization and digitalisation.
- Policy and regulation.
- Economic and environmental benefits.
- Best practices.
- Publications and resources.

This factsheet was based on the webinar Innovation in the Built Environment featuring **Lisa Graaf**, Buildings Performance Institute of Europe, **Helen Goodland**, Scius Advisory Inc. and **Veerle Labeeuw**, Circular Flanders and European Circular Economy Stakeholder Platform and, **Carolyn Kovac** from City of Atlanta, Real Easte and Housing, as guest discussant.

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