Energy efficiency in buildings

Driving Sustainable Renovation

Francesco Guarino, Associate Professor, University of Palermo (Co-Chair of IWG5)

02.07.2025

Agenda:

- 10.45: Introduction - Francesco Guarino, University of Palermo (Co-Chair of IWG5)
- 10.50: National Building Renovation Plans (NBRPs): sustainability and circularity aspects (D 1.10) - Cornelia Partsch, ECTP
- 11.00: Sustainability, affordability, just transition: Insights of the White Paper on Affordable, Sustainable Energy Transition and Building Renovation-Teresa Cuerdo, IETcc-CSIC (Co-chair of IWG5)
- 11.10: Q&A
- 11.20: “Circular tools to support building professionals: the DeCO2 project”- Miriam Navarro, Valencia Institute of Buildings
- 11.35: Q&A
- 11.40: Closing - Francesco Guarino, University of Palermo (Co-Chair of IWG5)

Some organisational rules

- Please mute yourself. (If you are not asking questions)
- Two Q&A sessions
- Questions can be asked in the chat or in the Q&A timeslots
- Webinar will be recorded, recording and slides will be shared with the participants and IWG5 members after the meeting.

Thank you!

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Energy efficiency in buildings

Driving Sustainable Renovation National Building Renovation Plans (NBRPs): sustainability and circularity aspects (D 1.10)

Cornelia Partsch, Policy and Project Officer, ECTP

02.07.2025

Agenda:

- IWG5-CSA/Deliverable D 1.10
- NBRP and ZEB
- Survey insights
- Recommendations
- Links

IWG5 Buildings

- IWG5: Implementation Working Group on Energy Efficiency of Buildings
- Chaired by a board, members are national representatives (24 countries) and 24 European stakeholders
- **Main objective** of IWG5: to deliver/ to monitor the **Implementation Plan** (IP) on energy-efficient solutions for buildings.
- Supported by a CSA project (Sep. 22-Aug. 25) > four partners: EUREC, ECTP, EURAC and WIP.

ECTP INNOVATIVE BUILT ENVIRONMENT

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NBRP Recommendations (D.1.10)

Topics:
- Challenges for NBRP, ZEB in Member States
- Circularity/sustainability insights
- Recommendations

Method:
- Desktop research and survey sent to IWG5 members

Survey feedback:
- 18 member organisations (37,5%), timeline: February/March 2025
- More feedback from Research Organisations (more knowledge on “renovation policies”)

National Building Renovation Plans

- Introduced in Article 3 of the revised Energy Performance of Buildings Directive (EPBD) of 2024, they are part of the National Energy and Climate Plans (NECPs) and are replacing the Long Term Renovation Strategies (LTRS)

New elements:

- an **overview of the national building stock** for different building types and of planned policies and measures, an outline of investment needs
- a **roadmap** with nationally established targets for 2030, 2040 and 2050
- New: Annex II (Common template), NBRP template for data collection

Timeline:

- **By 31 December 2025**: Member States have to establish a NBRP, then EC assessments and recommendations within 6 months
- **By 31 December 2026**: Member States have to submit their NBRPs
- NBRPs have to be updated every five years (same as for the LTRS)

National Building Renovation Plans

Annex II, Mandatory elements (*extract*)
a) Overview of the national building stock
b) Roadmap for 2030, 2040, 2050
c) Overview of implemented and planned policies and measures- circularity aspects **Includes:** • g) Prevention and high-quality treatment of construction and demolition waste • j) Reduction of whole-life-cycle greenhouse gas emissions for the construction, renovation, operation and end of life of buildings, and the uptake of carbon removals • k) the promotion of district and neighbourhood approaches and integrated renovation programmes at district level, which may address issues such as energy, mobility, green infrastructure, waste and water treatment and other aspects of urban planning and may take into account local and regional resources, circularity and sufficiency;
d) Outline of the investment needs, the budgetary sources and the administrative resource:
e) Thresholds of new and renovated zero-emission buildings, referred to in Article 11 (ZEB)
f) Minimum energy performance standards for non-residential buildings:
g) National trajectory for the progressive renovation of the residential building stock

ZEB

- ZEBs are replacing Nearly-zero energy (NZEB)> Long-term aim: decarbonisation of the European Building stock

- The revised EPBD describes **Zero-emission Buildings (ZEBs)** in Article 2 as follows:

" (2)'zero-emission building' means a building with a very high energy performance, as determined in accordance with Annex I, requiring zero or a very low amount of energy, producing zero on-site carbon emissions from fossil fuels and producing zero or a very low amount of operational greenhouse gas emissions, in accordance with Article 11".

Timeline:

- **From January 2028**: all new buildings owned by public bodies shall be ZEB.
- **By 2030**, all newly constructed buildings - within the EU are expected to meet ZEB standards
- **Existing buildings** must undergo transformation to achieve **ZEB compliance by 2050.**

ZEB

Definition of national thresholds

- **Define the maximum allowable energy demand for ZEBs**
- These thresholds must be at least 10% lower than those currently set for NZEBs.
- Establish maximum permissible levels of operational GHG emissions, which may differ for new versus renovated buildings.
- **These thresholds must be incorporated into NBRPs.**

- Annex II, section e) of the directive outlines the different groups for ZEBs:
  - Operational GHG emissions for new ZEBs;
  - Operational GHG emissions for renovated ZEBs;
  - Annual primary energy use for new ZEBs;
  - Annual primary energy use for renovated ZEBs.

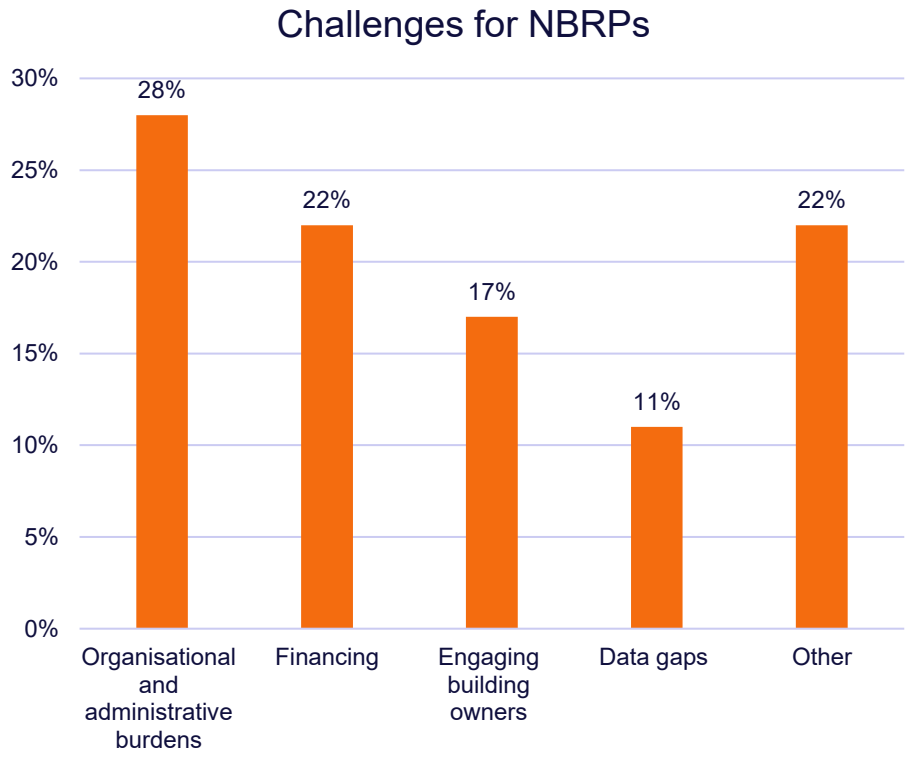
Global Warming Potential of Buildings (GWP)

- EPBD introduces in Article 7 the Whole Life-Cycle Global Warming Potential (GWP) reporting for buildings
- By 31 December 2025 : Delegated act for the calculation of life-cycle GWP
- By January 2027: Member States have to publish national roadmaps introducing life-cycle GWP targets and limit values for all new buildings in the EU.

IWG5 Survey insights- NBRP challenges

Main challenges for National Building Plans (NBRP)

- **Organizational and administrative burdens:** national coordination of building renovation is challenging (responsibilities are shared among different ministries and entities), administrative complexity of deep renovation)
- **Financing:** need for financing for all building types and to support the national building renovation policy in general
- **Engaging building owners:** lack of willingness of some building owners to undertake renovation projects
- **Data gaps:** availability of relevant data for building stock, data collection (missing processes for structured collection)
- **Other:** a shortage of skilled labour, low levels of public awareness, difficulties related to addressing the diversity of climate zones and technical barriers.



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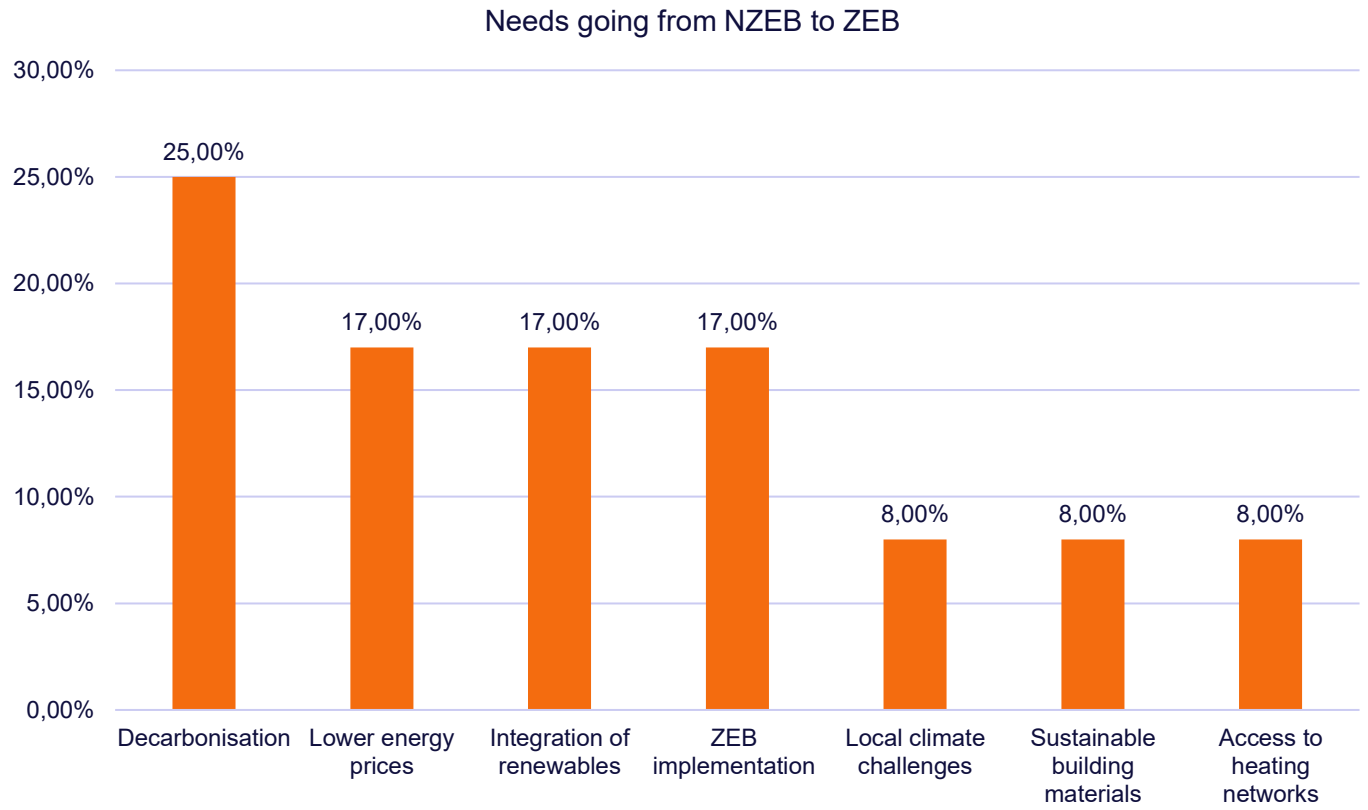
European Commission

IWG5 Survey insights- NZEB to ZEB

Needs going form NZEB to ZEB:

- Full decarbonisation
- Lower Energy Price
- Integration of Renewables
- Full ZEB Implementation
- Addressing local climate challenges
- Sustainable building materials
- Access to heating networks



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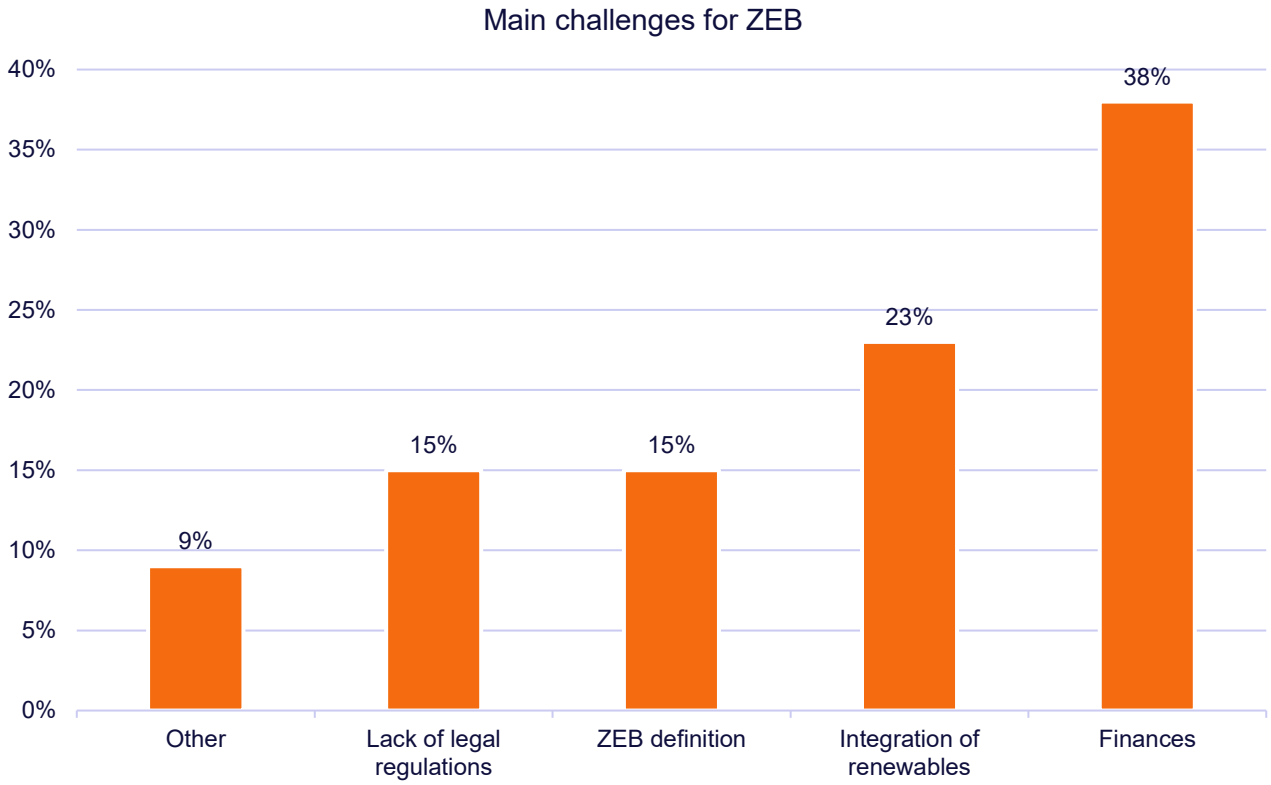
IWG5 Survey insights- ZEB Challenges

Main challenges for ZEB:

- **Finances:** Higher initial costs, missing investments in ZEB buildings
- **Integration of renewables:** missing policy regulations, lower potential for renewables in some regions
- **ZEB definition** itself is a problem in some Member States
- **Lack of legal regulations**
- **Other:** availability and certification of sustainable building materials, lack of skilled workers and the full elimination of fossil fuels



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IWG5 Survey insights- Key take-aways

Key challenges in implementing building renovation and Nearly-zero energy and zero-emission buildings (ZEB/NZEB) include:

Financing, regulatory complexity and administrative hurdles

Integration of renewables, data gaps, limited involvement of building owners

Addressing diverse climate scenarios in national scenarios

Aligning ZEB definitions and practices with national regulations

Lack of knowledge between relevant ministries and institutions

Key take-aways:

- Missing coordination between different entities involved in NBRPs
- Lack of knowledge and information sharing

Need to address « soft renovation » barriers:

- Communication at all levels on renovation strategies, NBRPs
- Consider regional challenges
- Financing, policy and regulatory support

Recommendations

Recommendations	Further information
Learn from LTRS	• 2023: LTRS report by the EC (based on a JRC report) • 2025: EPBD guidelines Effient Buildings Europe, BPIE , EC • Projects: EPBDwise, GreeNest (ZEB)
Holistic renovation approach	• e.g. Circularity, affordability, shift from energy to emissions (NZEB to ZEB) etc.
Consider timing and synergies of linked initiatives	• Use Synergies with Social Climate Plans> Deadline for SCPs is End of June 2025> Social Climate fund is financed by ETS2-also targeting buildings- will be fully operational in 2027 • Consider Global Warming Potential (GWP), delegated act will come by the end of 2025 • Take into account the developments around the European Affordable Housing Plan
Consider circularity	• Early 2026: Circularity Economy Act (Clean Industrial Deal) • By 2030: 24% of materials should be reused (Clean Industrial Deal)
Support ZEB	• Provide financial, regulatory and policy support for the ZEB implementation • Funding support for R&I on ZEB related topics
Close the information gap on NBRP	• Support exchange between ministries, entities involved in topics of the NBRP • Need for Knowledge-exchange and -transfer at all levels

Links

IWG5: Policy papers: https://www.iwg5-buildings.eu/media/policy-briefings/ and **Deliverable D 1.10**

Directives:

- Energy Performance of Buildings Directive: https://energy.ec.europa.eu/topics/energy-efficiency/energy-efficient-buildings/energy-performance-buildings-directive_en
- National Building Renovation Plans: https://energy.ec.europa.eu/topics/energy-efficiency/energy-efficient-buildings/national-building-renovation-plans_en
- ETS: https://climate.ec.europa.eu/eu-action/eu-emissions-trading-system-eu-ets_en
- Social Climate Funding: https://climate.ec.europa.eu/eu-action/eu-emissions-trading-system-eu-ets/social-climate-fund_en

Reports and Projects on NBRP and ZEB

- EC Report on Long-Term Renovation Strategies (2023)
- EPBD.wise project: National Building Renovation Plans and Zero-Emission Buildings: Policy needs and best practices: https://www.bpie.eu/publication/national-building-renovation-plans-and-zero-emission-buildings-policy-needs-and-best-practices/

EPBD Guidelines:

- Effient Buildings Europe, BPIE , EC (published June 30rd)

Thank you!

Cornelia Partsch (cornelia.partsch@ectp.org)

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Energy efficiency in buildings

Driving Sustainable Renovation

White paper on Affordable, Sustainable, Energy Transition and Building Renovation

Dr. Teresa Cuerdo Vilches, IETCC, Spain, (Co-chair of IWG5)
02.07. 2025

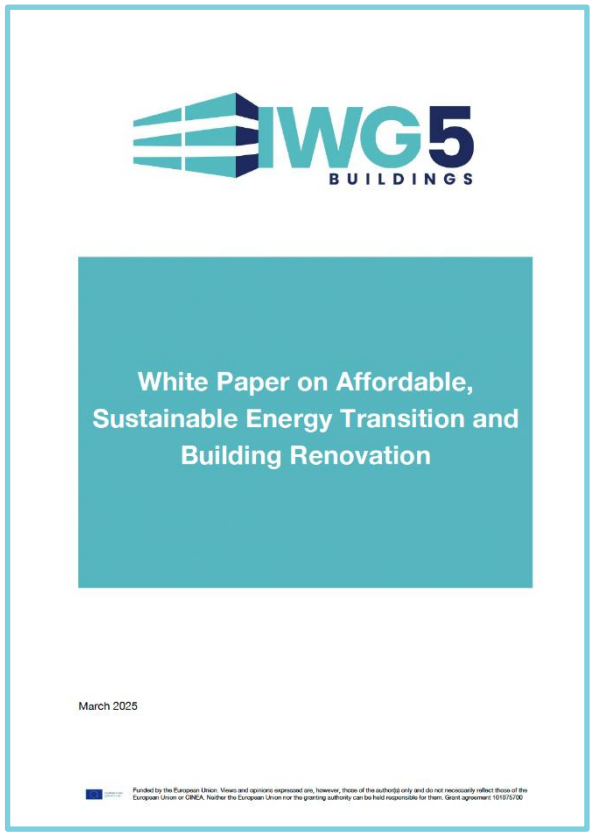
IWG5 Task 5

Name	Surname	Organization	Function
João Pedro	Gouveia	CENSE, CHANGE, NOVA School of Science and Technology, NOVA University Lisbon, Portugal	Chair
Teresa	Cuerdo	Eduardo Torroja Institute for Construction Sciences (CSIC)-IWG5 Buildings, Spain	Co-Chair
Silvia	Caneva	WIP, Germany	Rapporteur
Claudio	Del Pero	Politecnico di Milano, Italy	TF Member
Diletta	Ricci	Delft University of Technology	TF Member
Emiline	Elangovan	Chalmers University of Technology, Sweden	TF Member
Erwin	Mlecnik	Delft University of Technology	TF Member
Esra	Abdelhalim	Politecnico di Milano, Italy	TF Member
Fabrizio	Leonforte	Politecnico di Milano, Italy	TF Member
Graziano	Salvalai	Politecnico di Milano, Italy	TF Member
Niccolò	Aste	Politecnico di Milano, Italy	TF Member
Kristina	Mjörnell	Lund University, Sweden	TF Member
Liane	Thuvander	Chalmers University of Technology, Sweden	TF Member
Mafalda	Silva	INEGI - Instituto de Ciência e Inovação em Engenharia Mecânica e Engenharia Industrial, Portugal	TF Member

IWG 5 Task Force (TF) 5 on 'Just Transition Affordable and Sustainable Renovation'

- **Chair:** Dr. João Pedro Gouveia (jplg@fct.unl.pt) – FCT-NOVA University of Lisbon, Portugal
- **Co-Chair:** Dr. Teresa Cuerdo Vilches (teresacuerdo@ietcc.csic.es) IETCC, Spain
- **#14 members**
- **#6 countries** (southern, central, northern EU)
- **#10 Institutions**

Work Overview



- **44 pages document**
- **Work started –** 25th November 2024
- **1st partial draft –** 13th January 2025
- **Final version –** 17th March 2025

Missing: **Societal impacts of the green transition**

White Paper of the Task force provided input for the update of the Implementation Plan of IWG5

The Implementation Plan sets out actions required to achieve the targets for energy efficiency in buildings.

Reference: Gouveia, J.P., Cuerdo Vilches, T., Caneva, S., *et al.* (2025). White Paper on Affordable, Sustainable Energy Transition and Building Renovation. Task Force 5 on Just Transition and Affordable Sustainable Renovation. Working Group 5 on Energy Efficiency in Buildings.

White Paper Content & Objectives

Eu Policy:

- ✅ Reduce greenhouse gas emissions
- ✅ Expand renewable energy adoption
- ✅ Improve dwellings' energy efficiency

Challenges in the Energy Transition:

- Energy poverty & vulnerable, hard to reach energy users
- Renovating aging buildings for efficiency & affordability
- Balancing electrification costs & biomass dependency

💡 **A fair and inclusive energy transition requires coordinated policies, social engagement, and sustainable solutions.**

Solutions & Strategies:

- **Comprehensive Building Renovation** – Enhancing efficiency & affordability
- **Clean Heating & Cooling** – Heat pumps & renewable district systems
- **Renewable Energy Communities** – Localized production & citizen empowerment
- **Integrated Advisory Services** – One-stop shops & energy coaching
- **Building Renovation Passports** – Long-term energy planning

Implementation I

- We identify #4 areas where buildings decarbonization-related challenges are already arising.
- We suggest a deeper look at integrating the most vulnerable citizens' perspectives and related impacts.

- **#1 - Prioritize holistic building renovation**

⚠ **Challenges & Social Impacts**

- **Energy poverty risks** – High renovation costs may displace low-income tenants (**"renoviction"**)
- **Low renovation rates** – Only **0.2% of deep renovations**; current rate **~1% annually**
- **Knowledge & financial barriers** – Many homeowners are unaware of funding options

🔹 **Solutions & Policy Measures**

- **One-stop shops & financial support** for vulnerable households
- **Deep renovations** with lifecycle assessments & sustainable materials
- **Tenant protections** to prevent displacement
- **Public & private investments** must scale up significantly

Implementation II

- **##2 - Set fossil fuels phase-out**
  - **Households Energy Consumption (2022)-** 30.9% Natural Gas | 25.1% Electricity | 22.6% Renewables & Waste
  - **Energy Performance of Buildings Directive (2024):** phase-out of fossil fuel incentives, National bans on fossil fuels

⚠ **Challenges to Overcome**:

- High upfront costs & financing barriers
- Lack of awareness & social acceptance
- Skepticism from users relying on **LPG/bottled gas**

🔹 **Solutions & Policy Measures**

- Awareness campaigns on health & energy benefits
- Strengthened financial & policy support for low-income households
- Multiscale government collaboration & local engagement

Implementation III

- **#3 – Increase Electrification**

  ⚠️ **Challenges to Overcome**:

  - Low AC adoption (19% in EU vs. 90% in US); potential rise due to climate change.
  - Need for electrical infrastructure upgrades and grid reinforcement.
  - Shortage of skilled workers for installing efficient technologies.
  - Economic barriers: high upfront costs, energy bill concerns.

  🔹 **Solutions & Policy Measures**

  - Policy support & financial incentives for vulnerable groups.
  - Awareness campaigns on technology benefits & energy efficiency.
  - Avoid reliance on inefficient electric appliances.

Implementation IV

- **#4 – Reduce energy use and consumption from biomass**
  - Biomass is widely used, particularly in rural areas, due to cultural traditions and accessibility.
  - Firewood remains a primary source for space heating, water heating, and cooking.
  - Some households rely on free or low-cost firewood, making biomass crucial for energy affordability.

⚠ **Challenges to Overcome**:

- Despite being classified as "carbon neutral," biomass combustion releases harmful pollutants.
- Associated with 40,000 premature deaths in Europe due to respiratory and cardiovascular diseases. Health risks: household air pollution, lung cancer, cataracts, and burns.
- Inefficient fireplaces contribute to high emissions and poor indoor air quality.

◆ **Solutions & Policy Measures**

- Need for **cleaner alternatives** such as heat pumps and modern heating systems.
- Pellets are **more efficient** and **lower in emissions**, **but higher cost remains a barrier.**
- Upgrading to high-efficiency biomass stoves can **reduce emissions and improve air quality**.
- **Awareness campaigns and financial support** are crucial for equitable transitions

Looking ahead

#4 – Solutions and recommendations for a socially just and fair Energy transformation

#1 – From district heating and cooling to positive Energy districts

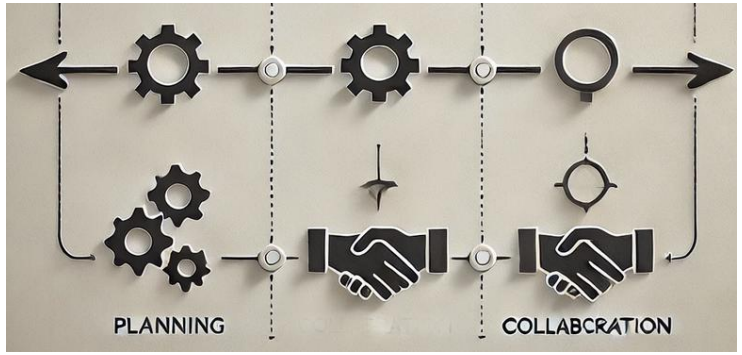
- **Energy efficiency & equity**: Transition to Positive Energy Districts (PEDs) for optimized energy use and lower emissions.
- **District heating & cooling (DHC)**: Key infrastructure with environmental benefits but facing technical and regulatory barriers.
- **Positive Energy Districts (PEDs)**: Social innovation and collaborative models, challenged by funding and public acceptance.
- **Social impact**: PEDs and DHC can reduce energy poverty but need regulatory support and integrated strategies.

Looking ahead

Solutions and recommendations for a socially just and fair Energy transformation

#2 – Renewable Energy Communities (RECs)

- **Citizen-led energy transition:** EU targets widespread renewable energy generation and community energy initiatives by 2050.
- **Inclusive Energy Communities (RECs):** Focus on social and environmental benefits, ensuring vulnerable groups' participation.
- **Key barriers:** Lack of awareness, financial and regulatory challenges, and limited community engagement.
- **Solutions:** Policies, funding, and training to boost inclusivity, with successful EU projects as models.



Looking ahead

Solutions and recommendations for a socially just and fair Energy transformation

#3 – One-stop shops & #4 – Energy Coaching

- **One-Stop Shops (OSS) & Support Services:** Centralized hubs providing financial aid, audits, and contractor referrals, with a mix of digital and on-ground support to assist vulnerable households.
- **Energy Coaching & Affordability:** Programs aimed at reducing energy bills, particularly in social housing, to help those struggling with rising energy costs.
- **Growing Challenges for the Elderly:** With a rising elderly population, energy poverty risks increase, making tailored assistance crucial.
- **Developing Solutions & Future Needs:** Emerging initiatives highlight progress, but further efforts are needed for an inclusive energy transition.

Looking ahead

Solutions and recommendations for a socially just and fair Energy transformation

#5 – Building renovation passports

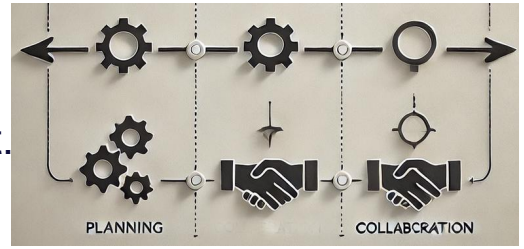
- **Building Renovation Passport (BRP):** A long-term renovation roadmap (up to 20 years) aiding homeowners with staged renovations and cost-effective measures.
- **EU Legal Framework:** Promoted under EPBD and updated in the latest recast to enhance energy performance and reduce emissions.
- **Circular Economy & Social Impact:** Supports better renovation planning, material reuse, and increased awareness, though not mandatory.
- **Implementation & Challenges:** Examples include Spain's PASE-E and the iBroad project, with further R&I needed to ensure accessibility for vulnerable populations.

Looking ahead

Solutions and recommendations for a socially just and fair Energy transformation

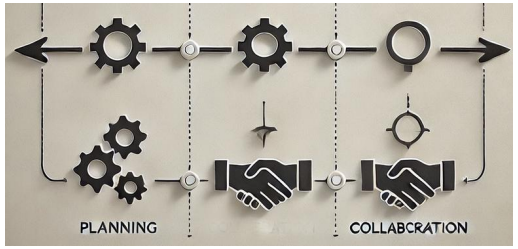
#6 – Societal Readiness Approach

- Achieving European **energy transition and building renovation goals** requires assessing **societal readiness**. Some indicators:
- **Societal Readiness Level (SRL):** societal acceptance of a project, technology, or innovation.
- Other related indicators:
  - **Societal Embeddedness Level (SEL):** Measures social willingness to adopt new technology.
  - **Societal Readiness (SR) Thinking Tool:** Resp. Research & Innovation (RRI) and sustainability.
  - **Social Return on Investment (SRoI):** Assesses social impact per monetary unit spent.
  - **Cost-benefit analysis:** Evaluates impact for stakeholders in public policies.
- No studies have explored how these indicators impact vulnerable populations.



IWG5-IP Targets extended

Integration of social research is key to understand the broader societal implications of energy transition and sustainable renovations. Additionally, it calls for a just and fair approach, **particularly for underserved** populations, by addressing barriers **through user-centered strategies and tools**.



Target 5.1-T1 - Reduce the energy use of buildings by 16% in 2030 with respect to 2020. **These solutions should prioritise passive measures* in building renovation, while promoting targeted financial support to the most vulnerable households.**

Target 5.1-T2 Zero Emission Buildings by 2030.

Develop and demonstrate solutions for zero-emission buildings by 2030 while retaining cost-efficiency. **These solutions should be promoted, incentivised, and publicised to build social trust and acceptance, as well as foster uptake for a fair and inclusive energy transition**.

For targets T3 and T4, stands out the need for EU and national funding to support follow-up **initiatives** assessing renovation impacts and technological enhancements.

Target changes in 5.1 of IP in T1 and T2.

New Implementation Plan will be published Mid-July on the website of IWG5:

https://www.iwg5-buildings.eu/

Thank you!

IWG 5 Task Force 5
Dr. Teresa Cuerdo Vilches
Co-Chair of IWG5/Co-chair of Task Force 5

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WG5 BUILDINGS

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ABOUT US

IVE is a non-profit Foundation constituted in 1986 and promoted by the Valencian regional Government (GENERALITAT VALENCIANA) with housing responsibilities.

IVE serves as interlocutor that brings together the interests of all actors in the building sector: Public authorities, professional associations, manufacturers, developers, builders, technological schools and users.

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BOARD COMMITTEE

IVE is directed by a Board Committee integrated by professionals involved in the building and urban process: local administrations and municipalities, architects and engineers associations, manufacturers, promoters, builders, users & citizens and R+D centres.

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ABOUT US
WHO WE ARE

IVE is a **research institute** that seeks to improve the quality and sustainability in the **construction sector** through the R&D in the building field.

During more than 35 years of its existence IVE has remained very active and it's used to prepare and compile information (technical documents, expert reports, conclusions of work), spread knowledge and promote retraining (organization of seminars, courses, conferences and fairs), perform outreach and raise awareness among citizens and ultimately, advise the Government in making decisions.

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IWG5 BUILDINGS

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MAIN TOPICS

BUILDING RENOVATION & URBAN REGENERATION

SOCIAL CHALLENGES

CONSTRUCTION MANAGEMENT

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Vicepresidencia Primera y Conselleria de Servicios Sociales, Igualdad y Vivienda

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MAIN TOPICS
BUILDING RENOVATION & URBAN REGENERATION

ENERGY EFFICIENCY AND ENVIRONMENT

We highly support the building renovation and urban regeneration processes of our cities, in all their different stages, areas and scales, to achieve more compact, evironmental friendly and energy efficient cities.

CONSERVATION AND MAINTENANCE

We promote the renovation of built housing stocks to reach minimum life conditions as well as improving their conservation, in order to ensure safety levels for users.

URBAN RESILIENCE

We develop new strategies to foster healthier, more resilient cities, identifying critical and vulnerable areas to minimize risks and prevent the deterioration of aging urban spaces.

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WG5 BUILDINGS

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Vicepresidencia Primera y Conselleria de Servicios Sociales, Igualdad y Vivienda

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MAIN TOPICS
SOCIAL CHALLENGES

UNIVERSAL ACCESSIBILITY

We are defining basic accessibility standards for both new architectural designs and existing spaces, supporting policies and strategies that promote integration, equal opportunities, and improved quality of life for all citizens.

AGEING AND DIVERSITY

We advocate for the renovation of public spaces to make them safer, more welcoming, and inclusive, fostering social interaction, engagement, and cultural expression to create a more people-friendly environment.

GENDER PERSPECTIVE

We recognize the complexity and diversity of urban life, ensuring that social, economic, and cultural factors are considered in developing strategies that meet the needs of all groups, regardless of gender, class, ethnicity, or age.

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IWG5 BUILDINGS

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MAIN TOPICS
CONSTRUCTION MANAGEMENT

COSTS CONTROL AND DATABASES

We are national pioneers in developing databases and tools for valuing building, urban, and renovation projects, providing a technical and economic reference for public procurement.

QUALITY PROMOTION

We create guides, technical tools, and apps to simplify the application of regulations, and have extensive experience certifying individuals, products, and buildings through the "IVE Certification Entity."

CIRCULAR PRINCIPLES

We advocate for circular development by assessing the environmental impact of construction and urban activities, promoting sustainable practices that consider environmental, social, and economic factors, as well as resource efficiency.

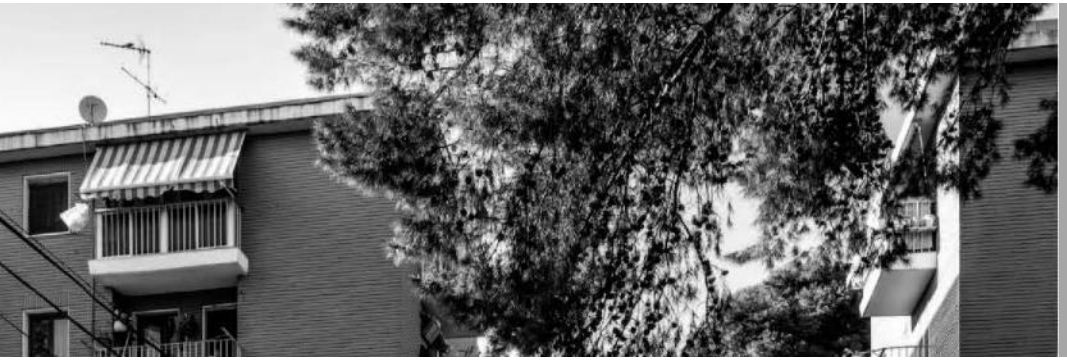
Co-funded by the European Union

WG5 BUILDINGS

GENERALITAT VALENCIANA
Vicepresidencia Primera y Conselleria de Servicios Sociales, Igualdad y Vivienda

IVE
Instituto Valenciano de la Edificación

WHAT WE DO



PUBLIC ADMINISTRATIONS & MUNICIPALITIES

TECHNICAL SUPPORT & EDUCATION

EU PROJECTS & ALLIANCES

GENERALITAT VALENCIANA
Vicepresidencia Primera y Conselleria de Servicios Sociales, Igualdad y Vivienda

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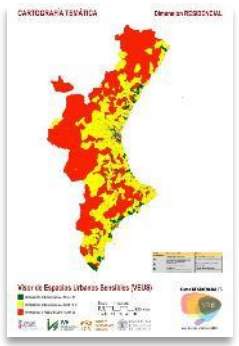
WHAT WE DO
PUBLIC ADMINISTRATIONS

IVE specializes in policy-making for local development, providing comprehensive support to municipalities through diagnostic and policy implementation tools. We assist in the formulation of national and regional regulations, offering tailored tools and guidelines for building and urban design. Additionally, we lead awareness campaigns targeted both at public administrations and citizens, promoting informed decision-making and sustainable development.



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WG5 BUILDINGS

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WHAT WE DO
TECHNICAL SUPPORT

BDC IVE 2024

TURIA
Toxicidad
Uso de los Recursos
Impacto Ambiental

RE10

REGISTRO POR LA CALIDAD EN EL HÁBITAT CONSTRUIDO

CATÁLOGO BIM

RESEARCH TRANSFER OF RESULTS

The results of our research are open access and materialize in: guides, publications, apps & online tools, certifications & labeling, GIS mapping, information repositories, educational resources, awareness campaigns, innovative products, policies, pilots & demonstrators, among others.

REGULATIONS AND TECHNICAL DEVELOPMENT

To improve building's quality, we elaborate technical documents, to ensure the fulfillment of the national or regional regulations.

BUILDING CERTIFICATION AND EVALUATION

We develop building certification systems, for dwellings and offices, based in the evaluation of energy, sustainability, health and wellbeing, acoustic, etc.

Co-funded by the European Union

IWG5 BUILDINGS

GENERALITAT VALENCIANA
Vicepresidencia Primera y Conselleria de Servicios Sociales, Igualdad y Vivienda

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WHAT WE DO
EDUCATION

CÁTEDRA MADERAMEN

ENRICHING PROFESSIONALS

A wide range of training courses designed for professionals to upskill and reskill
https://www.five.es/formacion/

EMPOWERING YOUTH

Strategic partnerships with UPV University
https://calab.es/catedra-maderamen/

Formación (17 horas online) 115 - 135 €
Mejora de la calidad del aire de los edificios

Formación (24 horas online) 125 - 145 €
Análisis del Ciclo de Vida (ACV) en edificios

Formación (80 horas online) 350 - 400 €
Reestrena Barrio. Metodologías para la Regeneración Urbana de Centros Históricos, Barrios y Áreas Urbanas Preferentes.

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WHAT WE DO
EU PROJECTS

EUROPEAN RESEARCH PROJECTS

missions is to improve the strategic positioning of the Valencian Region in the European Union as a centre of excellence, supporting housing and urban planning policies in the territory. We achieve this by attracting European funds, promoting our participation in competitive projects related to research, innovation, education and territorial cooperation, within programmes such as **LIFE**, **HORIZON**, **INTERREG, MED or ERASMUS+**.

More info (click HERE)

Co-funded by the European Union

GENERALITAT VALENCIANA
Vicepresidencia Primera y Conselleria de Servicios Sociales, Igualdad y Vivienda

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WHAT WE DO
EU PROJECTS

More than 50 projects developed and underway since 2012

DRIVE 0
Driving decarbonization of the EU building stock by enhancing a consumer centred and locally based circular renovation process
Ciudades Resilientes e Innovativas / Resilient & Innovative cities, Edificios de Bajo Consumo / Low carbon & NZE Buildings, Proyectos I+D+i

TripleA-reno
Attractive, Acceptable and Affordable deep RENOvation by a consumers orientated and performance evidence based approach
Ciudades Resilientes e Innovativas / Resilient & Innovative cities, Edificios de Bajo Consumo / Low carbon & NZE Buildings, Proyectos I+D+i

HAPPEN
Holistic APproach and Platform for the deep renovation of the Med residential built ENvironment
Ciudades Resilientes e Innovativas / Resilient & Innovative cities, Edificios de Bajo Consumo / Low carbon & NZE Buildings, Plataformas / Platforms, Proyectos I+D+i

SusCool
Sustainable Cooling in Supermarkets
Edificios de Bajo Consumo / Low carbon & NZE Buildings, Proyectos I+D+i

SHERPA
SHared knowledge for Energy Renovation in buildings by Public Administrations
Edificios de Bajo Consumo / Low carbon & NZE Buildings

IMPULSE
Integrated Management Support for Energy efficiency in Mediterranean PUblic buiLdings
Ciudades Resilientes e Innovativas / Resilient & Innovative cities, Edificios de Bajo Consumo / Low carbon & NZE Buildings

ALTER ECO
Alternative tourist strategies to enhance the local sustainable development of tourism by promoting Mediterranean Identity
Ciudades Resilientes e Innovativas / Resilient & Innovative cities, Edificios de Bajo Consumo / Low carbon & NZE Buildings, Formación / Training

CoSuDS
Collaborative transition towards sustainable urban drainage: making it happen at district scale (PATHFINDER PROJECT)
Ciudades Resilientes e Innovativas / Resilient & Innovative cities

ALDREN
ALliance for Deep RENovation in buildings: Implementing the European Common Voluntary Certification Scheme, as backbone along the whole deep renovation process
Ciudades Resilientes e Innovativas / Resilient &

Smart Cities DTP
Smart City design tools and principles: bridging the gap between social innovation and local sustainability strategies
Ciudades Resilientes e Innovativas / Resilient & Innovative cities, Formación / Training, Proyectos I+D+i

eDEEP
energy Data Exchange Enabling Platform
Plataformas / Platforms

BIMmplement
Towards a learning building sector by setting up a large-scale and flexible qualification methodology integrating technical, cross-craft and BIM related skills and competences
Edificios de Bajo Consumo / Low carbon & NZE Buildings, Formación / Training

ENERFUND
An ENErgy Retrofit FUNDing rating tool
Ciudades Resilientes e Innovativas / Resilient & Innovative cities, Edificios de Bajo Consumo / Low carbon & NZE Buildings

PROF-TRAC
PROFessional multi-disciplinary TRAining and Continuing development in skills for NZEB principles
Edificios de Bajo Consumo / Low carbon & NZE Buildings, Formación / Training

BTA
Acelerador de las tecnologías en los edificios
Plataformas / Platforms

SSO
Smart and Sustainable Offices
Edificios de Bajo Consumo / Low carbon & NZE Buildings

nded by
uropean Union

IWG5 BUILDINGS

Dynamic Decarbonisation Pathways Framework Integrating Technological, Social, and Policy Innovations for Sustainable Renovations in the Built Environment

Grant Agreement No: 101147781

Co-funded by the European Union

GENERALITAT VALENCIANA
Vicepresidencia Primera y Conselleria de Servicios Sociales, Igualdad y Vivienda

IVE
Instituto Valenciano de la Edificación

IVE'S PARTICIPATION IN EU-FUNDED PROJECTS ALIGNED WITH REGIONAL GOVERNMENT PRIORITIES:

Citizens' awareness and promotion of benefits of renovation in order to accelerate renovation rates in the EU. **SAVE THE HOMES, reMODULEES, OneClickRENO, BARRIO**

Focused on upskilling professionals in order to improve the quality of buildings
BUSLEAGUE, BUSGOGIRCULAR

Support to public admininistrations in order to increase their capacities.
BEEP, SEACAP 4SDG, IMPULSE PLUS, FACILITA

Generation of tools to support professionals
ALDREN, BES, OneClickRENO, BARRIO, DECO2

Innovative materiales, products, and technologies applied to buildings
DRIVE0, INFINITE, INPERSO, IMIP, DECO2

Co-funded by the European Union

“DeCO2 envisions a circular and sustainable decarbonised future for the European built environment.”

17
PARTNERS

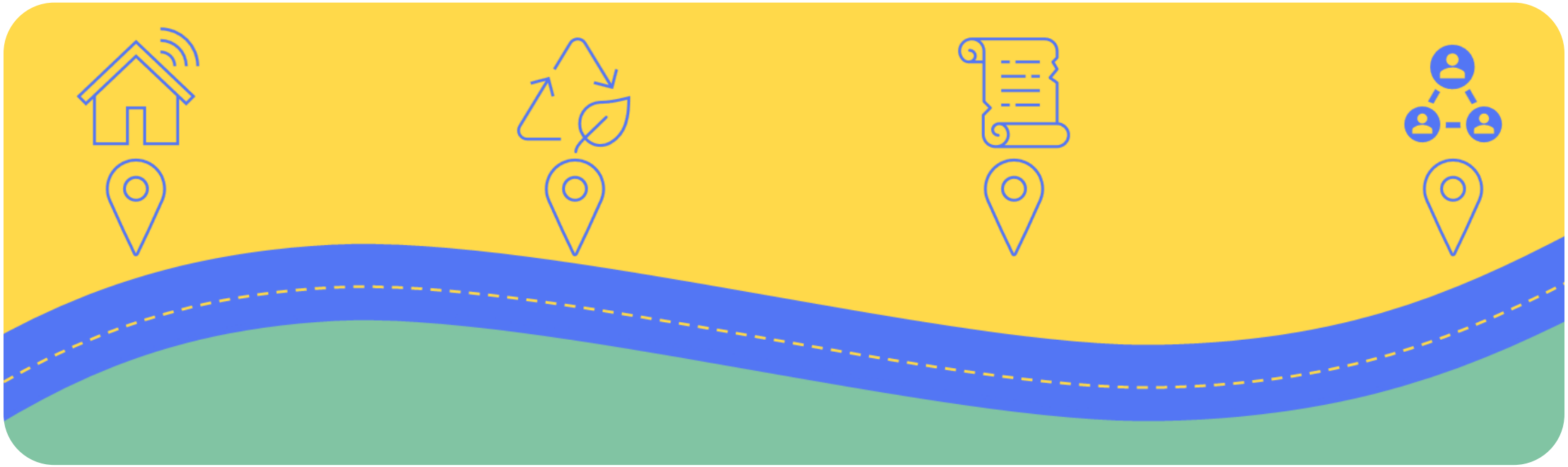
8 EU
COUNTRIES

48
MONTHS

3
DEMOS

€7 M
FUNDING

What is DeCO2?



A dynamic framework for renovation projects proposed to advance decarbonization through social and policy innovation.

Co-funded by the European Union

DeCO2 Project Scope

The project aims to improve the ***energy efficiency, circularity and sustainability of the built environment.*** *DeCO2 will* ***apply integrated approaches*** *that* ***demonstrate, in practice, achievable pathways for decarbonisation of the building stock.***

Aim

This ***means developing and integrating***

-new design techniques *allowing* ***for deconstruction and reuse****;*
-new products and components that can be dismantled and reused*;*
-new products and components for construction works that incorporate reused and recycled elements and materials*.*

Innovations

The demonstration sites deploy and test technologies and enabling conditions through a ***value chain approach*** in:
planning, design, budgeting, procurement, construction practice, insurance, and related administrative and regulatory processes.

Demo

Co-funded by the European Union

DeCO2 in a nutshell

A location-based, user-centric portfolio of materials and renovation systems is built to embrace local industrial ecosystems and verticals.

Co-funded by the European Union

DeCO2 in a nutshell

DeCO2 digital tools speed up the transition of the construction industry towards decarbonisation through Construction 4.0 enablers.

Co-funded by the European Union

DeCO2 in a nutshell

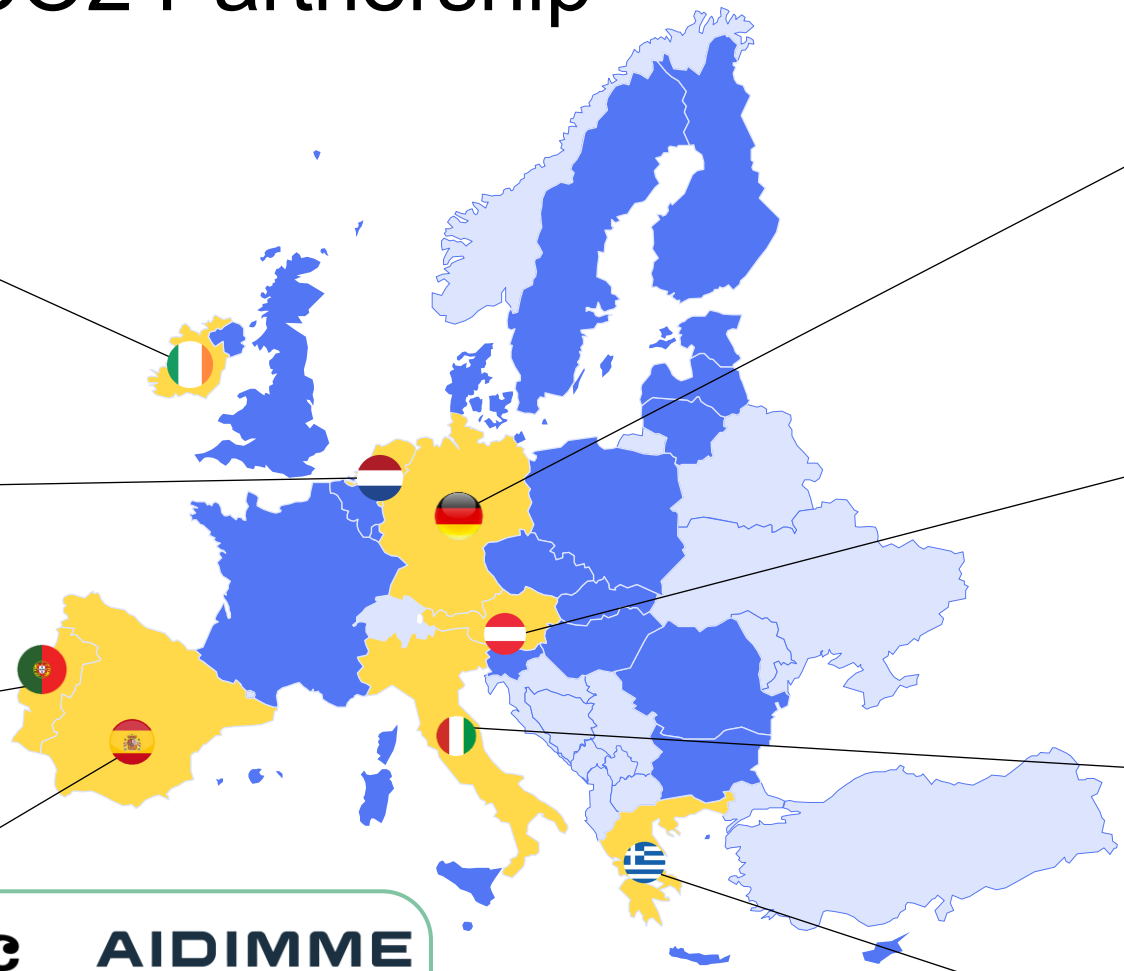
The regulatory sandboxes in DeCO2 establish safe spaces for legal and regulatory testing of innovations.

Co-funded by the European Union

DeCO2 Expected outcomes

- ✓ Increased number of **innovative solutions and packages for sustainable construction and renovation**.
- ✓ Increased number of options for built-environment **decarbonisation pathways towards zero-emission buildings** considering the whole **value chain at local or regional level**.
- ✓ Increased **engagement and participation of the whole value chain in local and regional innovation clusters**.
- ✓ **Reduced time from first demonstration to market** of sustainable renovation solutions.
- ✓ **Increased awareness and improved access at a local or regional level** to information on construction products for reuse and circular businesses.
- ✓ Creation of **new business opportunities with reduced risk for investment in the circular economy**.
- ✓ Enhanced engagement amongst **communities, businesses, local and regional governments, and the extended construction value chain**, e.g. materials and equipment, manufacturers, construction companies.

DeCO2 Partnership



TUS
Bord Oideachais & Oiliúna
LUIMNIGH & AN CHLÁIR
LIMERICK & CLARE
Education & Training Board

IEECP
INSTITUTE FOR EUROPEAN ENERGY AND CLIMATE POLICY

WSOLVE

NOVA IMS
Information Management School

cemosa
Ingeniería y Control

Iaac

AIDIMME
Technology Institute

IVE
Instituto Valenciano de la Edificación

CoCircular

Ajuntament de Castelló

3L

Fraunhofer IBP

IG TERRASSENHAUS

Wegener Center

UNI GRAZ

wasp

pwc

DeCO2

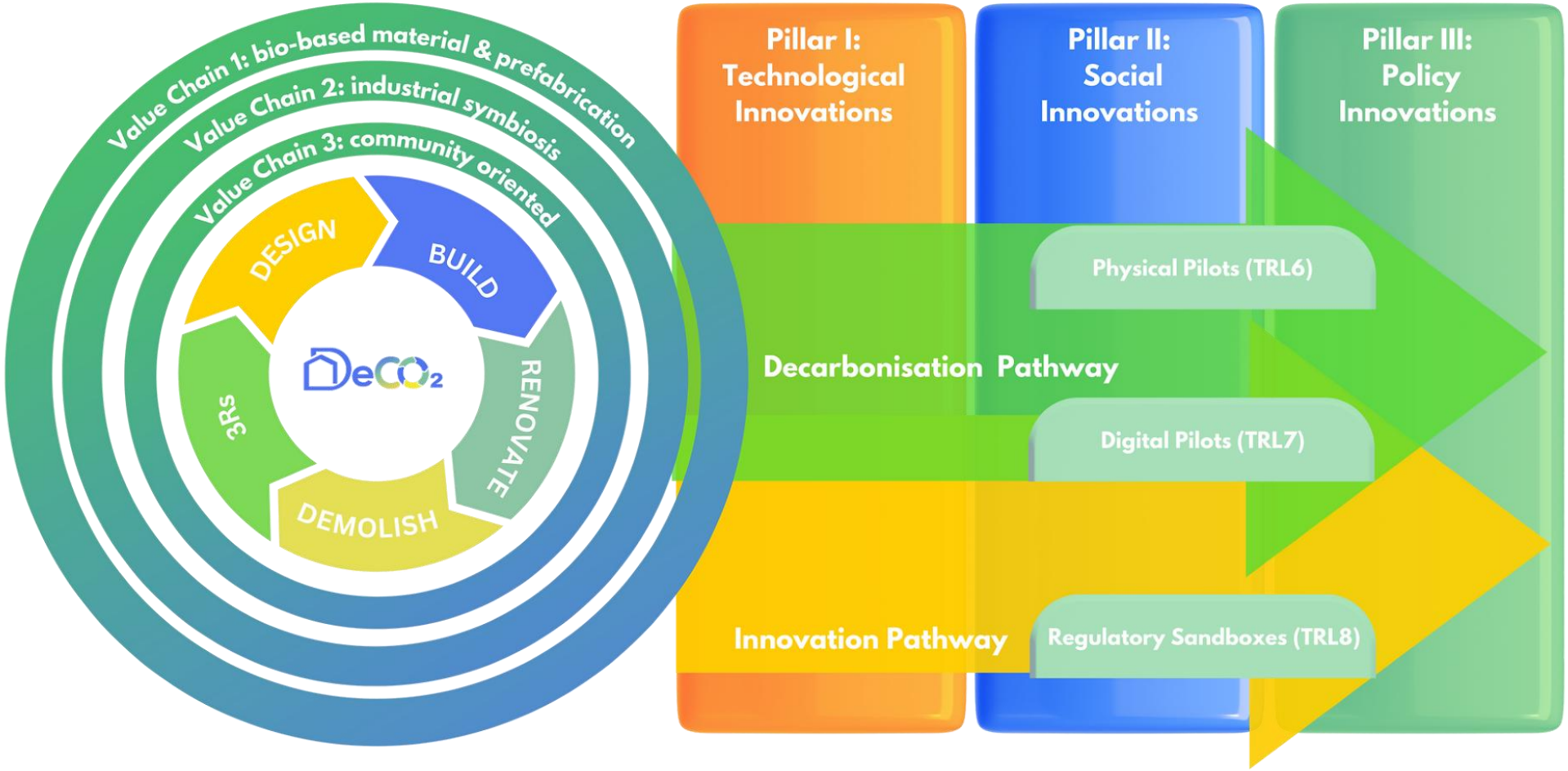
Co-funded by the European Union

DeCO2 Partnership

No.*	Participant organisation name	Short Name
1 (C)	INSTITUTE FOR EUROPEAN ENERGY AND CLIMATE POLICY STICHTING	IEECP
2	PRICEWATERHOUSECOOPERS BUSINESS SOLUTIONS AE	PwC
3	CENTRO DE ESTUDIOS DE MATERIALES Y CONTROL DE OBRA SA	CEMOSA
4	UNIVERSIDADE NOVA DE LISBOA	NOVA
5	FRAUNHOFER GESELLSCHAFT ZUR FORDERUNG DER ANGEWANDTEN FORSCHUNG EV	Fraunhofer
6	LENZE-LUIG 3-L-PLAN GBR	3L
7	WSOLVE B.V	WSolve
8	UNIVERSITAET GRAZ	UGR
9	INTERESSENSGEMEINSCHAFT TERRASSENHAUS ST. PETER	IG-THS
10	INSTITUTO VALENCIANO DE LA EDIFICACION FUNDACION	IVE
11	INSTITUT D'ARQUITECTURA AVANCADA DE CATALUNYA	IAAC
12	INSTITUTO TECNOLOGICO METALMECANICO, MUEBLE, MADERA, EMBALAJE Y AFINES-AIDIMME	AIDIMME
13	COCIRCULAR SUSTAINABLE SOLUTIONS SL	CoCircular
14	AYUNTAMIENTO DE CASTELLON DE LA PLANA	AJC
15	WASP SRL	WASP
16	Technological University of the Shannon: Midlands Midwest	TUS
17	LIMERICK AND CLARE EDUCATION AND TRAINING BOARD	LCETB

Co-funded by the European Union

DeCO2 Structure



Co-funded by the European Union

DeCO2 Project objectives

- ✓ **PO1: Implement and showcase circular and technological innovations that contribute to the decarbonization of the built environment** integrating new eco-friendly and recyclable materials, cutting-edge digital manufacturing techniques (including 3D printing and Robotics), and novel data-driven pathways across the local or regional level value chain in three large-scale demonstrators.
- ✓ **PO2: Foster social innovation by people-centred, inclusive, creativity-driven, participatory processes activities** for the development, implementation, and post-occupancy assessment of sustainable renovation solutions. Decarbonization pathways urge immediate behavioural shifts regarding the use and interaction with novel clean energy technologies and methods for climate neutrality. Decarbonizing the building stock through construction, demolition and renovation practices require actions to be tailored to occupant behaviour, technology and materials availability and changing local climate conditions with stakeholders from the whole construction chain engaged in co-creation process.
- ✓ **PO3: Promote policy innovation by providing practical guidelines to public authorities,** policy makers and other stakeholders on how to implement decarbonisation pathways, highlighting the challenges and enabling conditions to overcome them. This will be based on 'real-life' cases demonstrating what implementing decarbonisation means in practical terms through demonstrative regulatory sandboxes.
- ✓ **PO4: Demonstrate the effectiveness and viability of innovative digital solutions,** low disruptive construction and retrofitting processes on **three physical demonstrators (demo cases)** with policy innovation activities regarding national regulatory sandboxes through the integration of technological, social, and circular innovations.
- ✓ **PO5: Assess the scalability and replicability of the demonstrated built environment decarbonization pathways** for wider adoption by deploying the innovation pathways on three demonstrated Living Labs. DeCO2 will build on its demonstrations to replicate the framework in other contexts, by increasing the knowledge-base and practical experience about circular data-driven decarbonisation solutions in the built environment.

DeCO2 Regulatory sandboxes & satellites

Limerick Council City, Ireland
Improving regulatory sandboxes in the city of Limerick. Focus on all pillars.

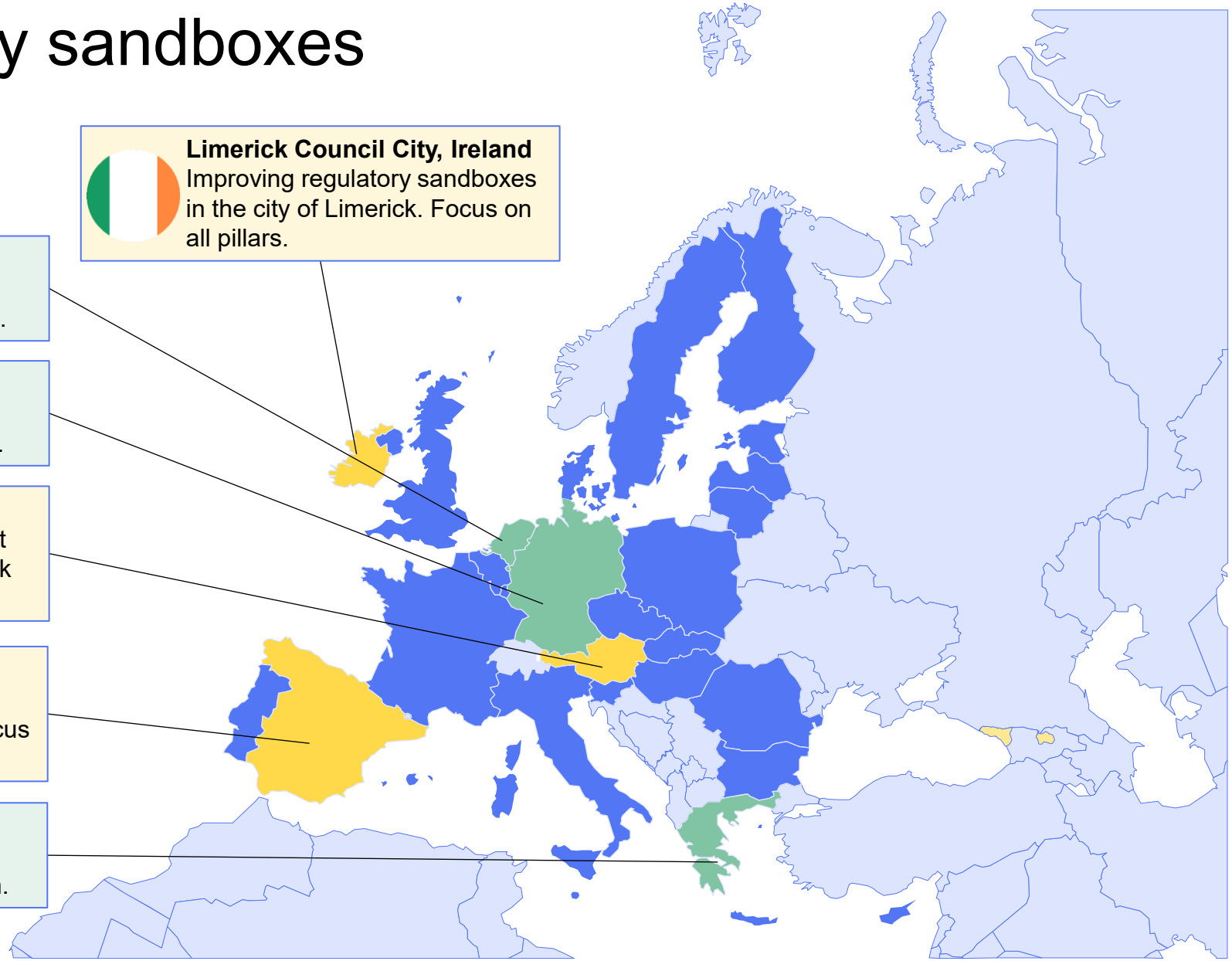
Satellite, The Netherlands
Circular materials mapping for DeCO2 potential dissemination.

Satellite, Germany
Circular materials mapping for DeCO2 potential dissemination.

Graz, Austria
Involves a social acceptance approach at the local community and residential block level. Focus on Pillars 2 & 3.

Castellon Municipality, Spain
Involves the set-up of the first regulatory sandbox in the Valencia Community. Focus on all pillars.

Satellite, Greece
Circular materials mapping for DeCO2 potential dissemination.



Co-funded by the European Union

Demo 1: Limerick City, Ireland (TUS)

- Bio-based fully recyclable composites
- Mycelium and breathable adhesives to sequester carbon
- Green roof testing integrating various waste products and green vegetation
- Circular and cost-effective way for scalability
- Practical retrofitting and circular guidelines for the construction industry and building owners (TUS & Fraunhofer IBP)

Co-funded by the European Union

Demo 2: Comunitat Valenciana, Spain (IVE)

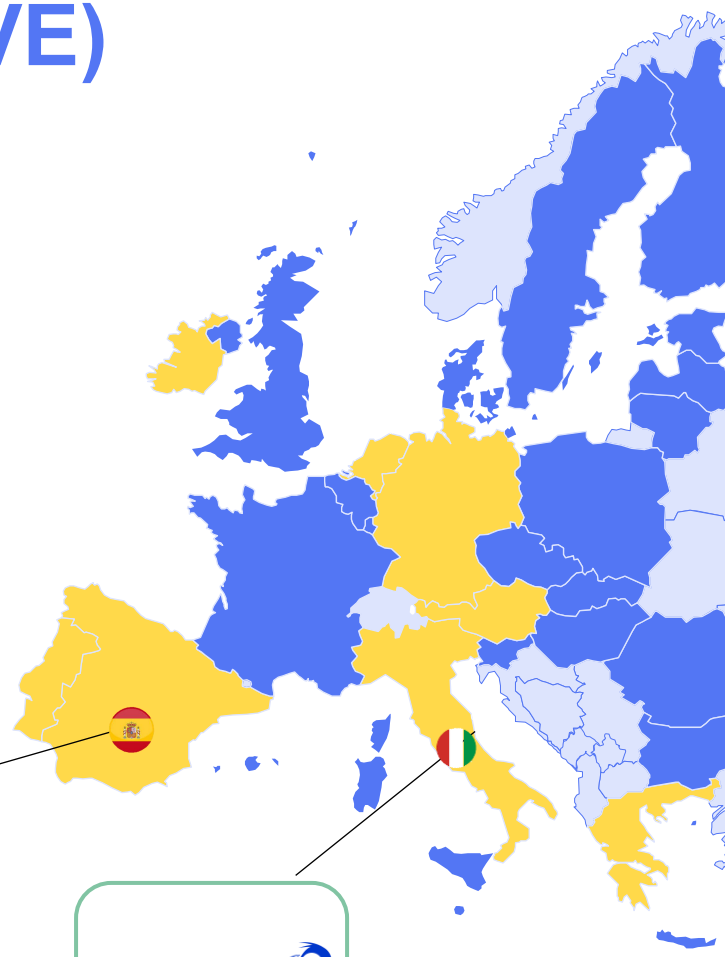
- A circular ecosystem involving two buildings: a historical library in the city of Castellón under renovation as a material supplier, and an experimental building to be constructed in Valencia on the UPV campus.
- Library for controlled dismantling (AJC)
- Digital Twin (CEMOSA)
- Material bank including sectors i.e. forestry and agriculture (CoCircular)
- Material Passport library(Wsolve)
- Innovative recycled construction products (AIDIMME)
- Mosaic floor (reusing ceramic) and 3D-printed walls (reusing earth) (IAAC &WASP)
- Regulatory sandbox managed by IVE.

Demo 2: Comunitat Valenciana, Spain (IVE)

In the conventional construction sector, the life cycle of materials follows a linear flow.

The Spanish Demo aims to promote the **recirculation of these flows** and identify potential barriers that hinder this process.

To achieve this, in the Spanish Demo resource emitters become receivers, and vice versa, depending on the stage of the construction process.



cemosa Ingeniería y Control · Iaac · AIDIMME Technology Institute · IVE Instituto Valenciano de la Edificación · CoCircular · Ajuntament de Castelló

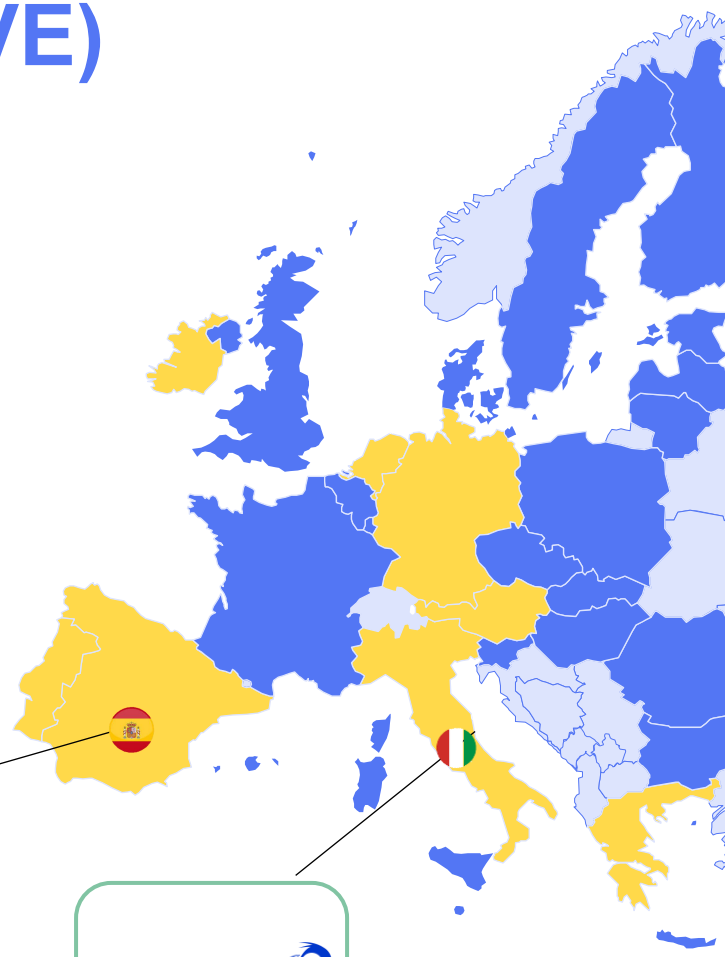
WASP

Co-funded by the European Union

Demo 2: Comunitat Valenciana, Spain (IVE)

7 Partners involved:

- **IVE**: **Pilot coordinator**
- Castellón City Council: Building 1 owner
- CoCircular: Materials bank
- AIDIMME: Innovative products
- IAAC: Building scanning & Ceramic robotic recycling
- WASP: 3D printing with earth
- CEMOSA: Digital twin



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Demo 2: Comunitat Valenciana, Spain (IVE)

The Spanish Demo includes two buildings:

1/ the **Castellón Library**, currently undergoing renovation (Oct. 2024 – March 2026) where the dismantling process is being carefully managed to maximize the reuse of construction and demolition waste (CDW), byproducts, and materials with reuse potential;

2/ the **UPV Living Lab in Valencia**, set for construction in April 2026, which will serve as a regulatory sandbox for testing secondary products and innovative technologies.

Co-funded by the European Union

Demo 2: Comunitat Valenciana, Spain (IVE)

BUILDING 1 – CASTELLÓN LIBRARY

BUILDING 1
Castellón Library

LOCATION
Street: Carrer Major, 89
City: Castelló de la Plana
Region: Valencian region
Country: SPAIN
Google maps

RENOVATION WORKS:
Oct. 2024 – March 2026

The Castellón Library (owned by **Castellón City Council**) will serve as the primary source of materials. CDW will be controlled and inventoried in a new platform or materials bank (**CoCircular**). **AIDIMME**, **IAAC**, and **WASP** will reutilize earth and ceramic for developing secondary products and innovative technologies.

Co-funded by the European Union

Demo 2: Comunitat Valenciana, Spain (IVE)

BUILDING 2 – VALENCIA UPV LIVING LAB

BUILDING 2
Valencia UPV Living Lab

LOCATION
Street: Camí de Vera s/n
UPV Campus
City: Valencia
Region: Valencian region
Country: SPAIN
Google maps

CONSTRUCTION WORKS:
April 2026 – April 2027

The UPV University was designated as a ‘regulatory sandbox’ by the Valencia City Council in its recent regulation of September 2024.
IVE will coordinate the construction of the DeCO2 Living Lab where innovative products and technologies developed by **AIDIMME, IAAC** and **WASP** will be tested.

Co-funded by the European Union

Demo 2: Comunitat Valenciana, Spain (IVE)

TIMELINE

Jun-Sep 2024	Oct-Jan 2025	F-May 2025	Jun-Sep 2025	Oct-Jan 2026	F-May 2026	Jun-Sep 2026	Oct-Jan 2027	F-May 2027	Jun-Sep 2027	Oct-Jan 2028	F-May 2028
0-4	**5-8**	**9-12**	**13-16**	**17-20**	**21-24**	**25-28**	**29-32**	**33-36**	**37-40**	**41-44**	**45-48**
PRE	DE-CONSTRUCTION				CONSTRUCTION				POST		

Castellón Library

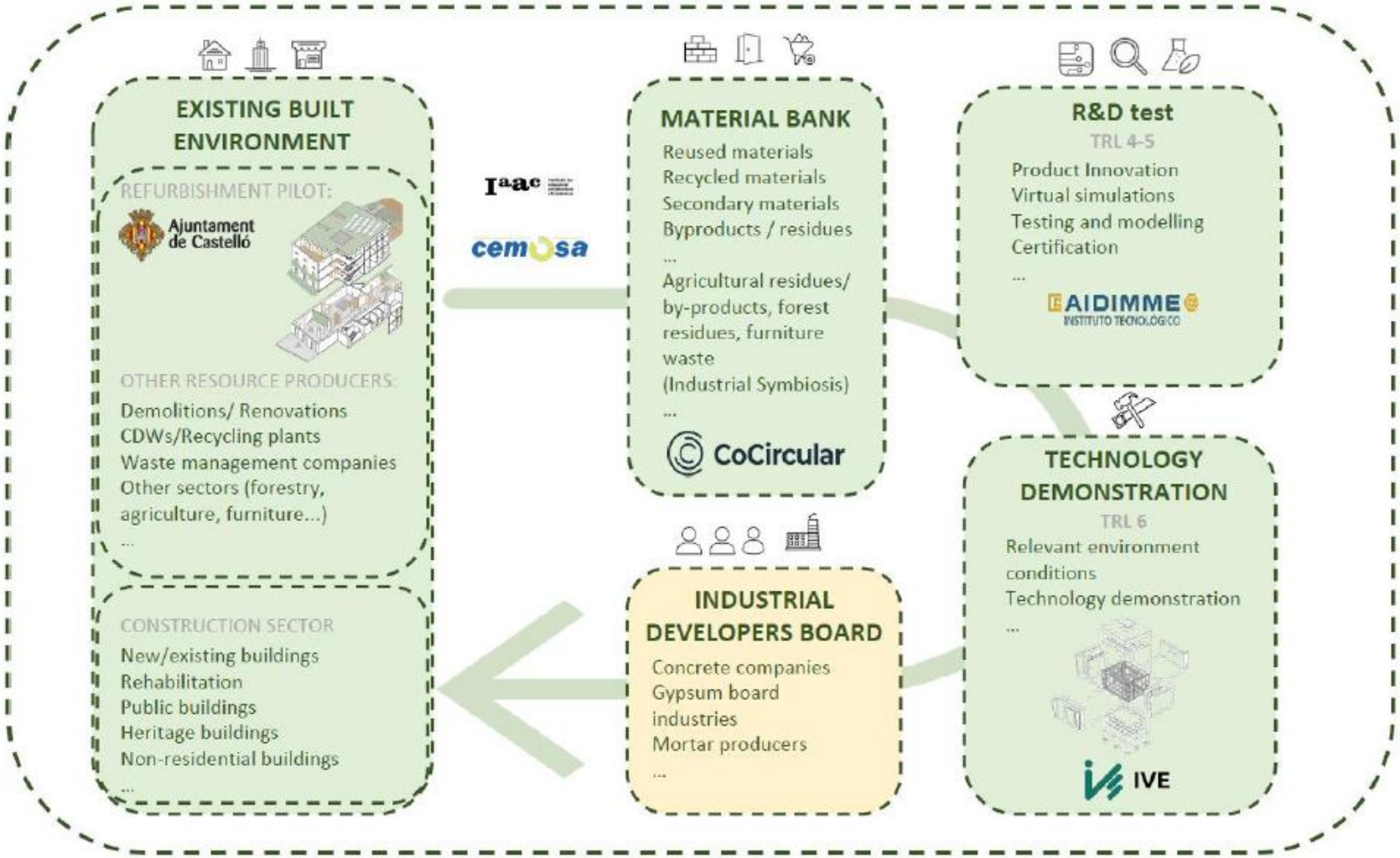
Valencia UPV Living Lab

SECONDARY MAT. & CDW COC / AJC	SOURCING	IDENTIFICATION	DESTINATION								
PRODUCTS & TECHNOLOGIES IAAC / WASP	RESEARCH			CERTIF.	DESIGN & PRODUCTION		INSTAL. April 27		RESULTS ANALYSIS		
PRODUCTS & TECHNOLOGIES AID	RESEARCH			INSTAL. April 26	MONITORING				RESULTS ANALYSIS		
KPIs 3L / CEMOSA	DEFINITION & SELECTION OF KPIS										
DIGITAL TWIN CEMOSA	VIRTUAL DEMOS			MEASUREMENT & DATA COLLECTION (sensors, IoT, devices)					SCENARIOS		

Co-funded by the European Union

Demo 2: Comunitat Valenciana, Spain (IVE)

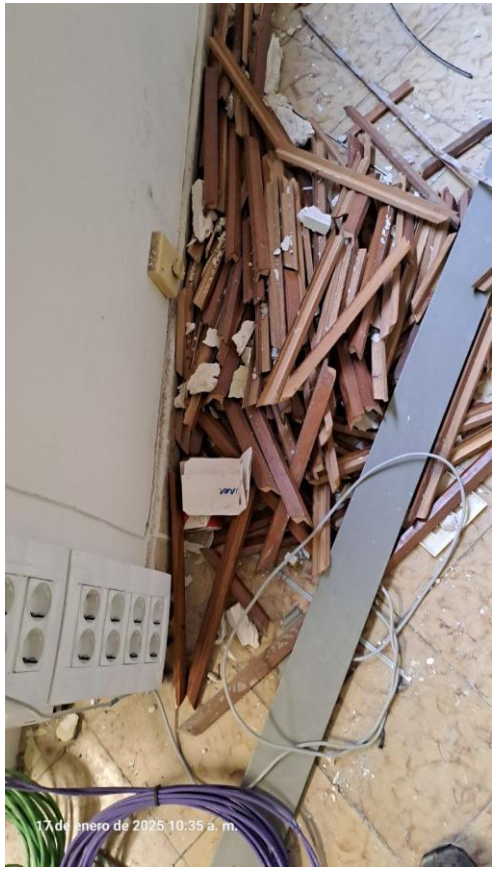
MATERIAL FLOW IN THE SPANISH DEMO



Co-funded by the European Union

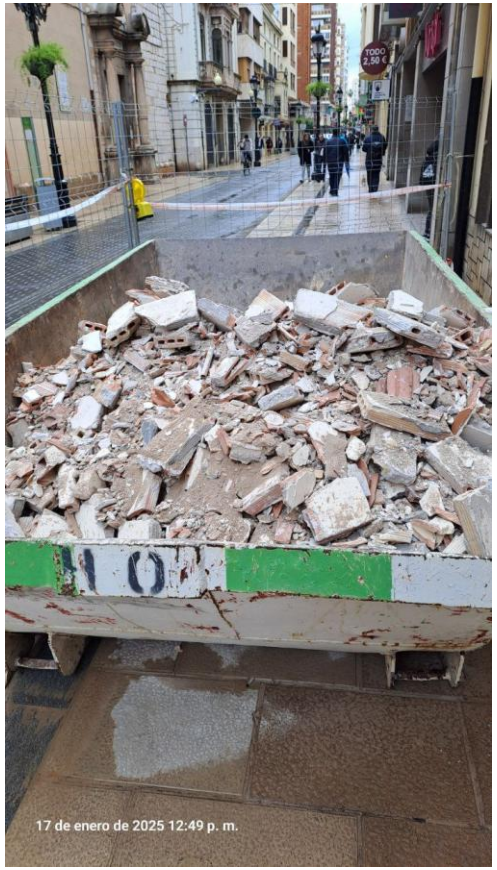
Demo 2: Building 1, Comunitat Valenciana, Spain (IVE)

Demo 2: Building 1, Comunitat Valenciana, Spain (IVE)



Co-funded by the European Union

Demo 2: Building 1, Comunitat Valenciana, Spain (IVE)



CDW minimization: material classification according to potential reuse and/or recyclability (furniture, equipment, etc.)

Selective CDW processing

Training for site workers in CDW management & segregation

Co-funded by the European Union

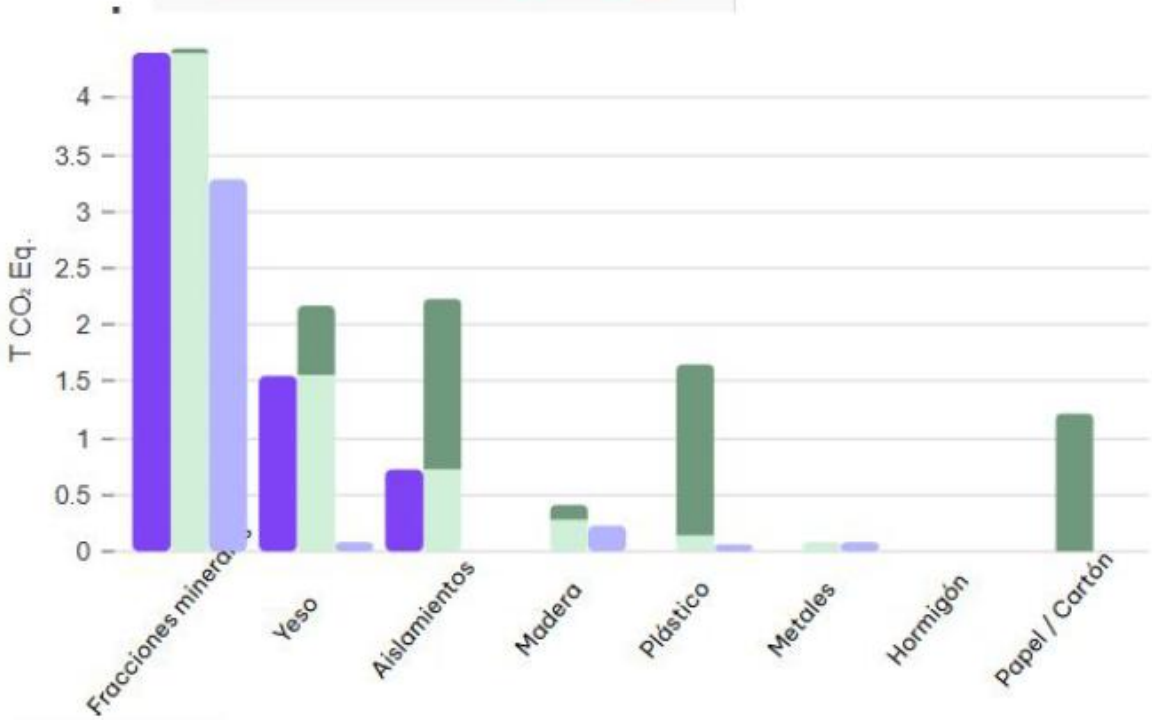
Demo 2: Building 1, Comunitat Valenciana, Spain (IVE)

RESULTS TO DATE

Segregation of 11 streams by products/waste (vs. 7 mandatory by law)

COST SAVINGS: 50%

- Reduction in waste generation.
- Reduction in landfill volume



Co-funded by the European Union

Demo 2: Building 1, Comunitat Valenciana, Spain (IVE)

MATERIAL FLOW IN THE SPANISH DEMO

COC

AID
IAAC
WASP

Co-funded by the European Union

Demo 2: Building 2, Comunitat Valenciana, Spain (IVE)

AIDIMME

IAAC

WASP

INNOVATIONS TO BE TESTED *(2026)*

Sandwich Panel Bio *(Fibers + Bioadhesive)*

Natural fiber core (cane, hemp, rice husk, posidonia) + tannin-based adhesive. Recycled mortar coating.

Figura 4-9. Piezas de aislante de posidonia en interior de panel.

Figura 4-10. Módulos de partición interior cerrados.

Insulation core of Posidonia with paulownia wood coating.

Co-funded by the European Union

Demo 2: Building 2, Comunitat Valenciana, Spain (IVE)

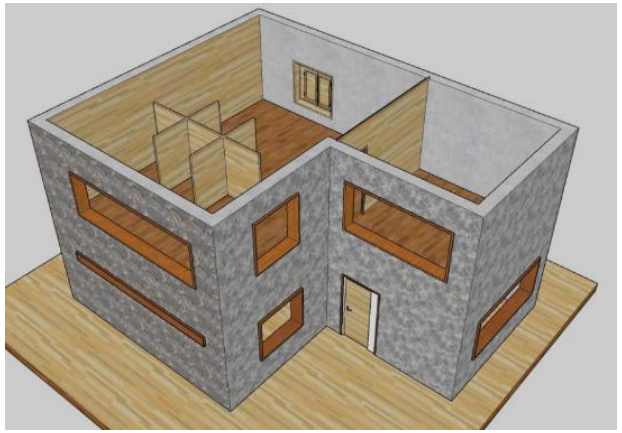
AIDIMME

IAAC

WASP

INNOVATIONS TO BE TESTED *(2026)*

Adhered Insulation System



Paulownia/pine layers with recycled cork sheet (<1 cm).

Plaster (interior/exterior)

Recycled mortar with cane, hemp, or palm fibers.

Co-funded by the European Union

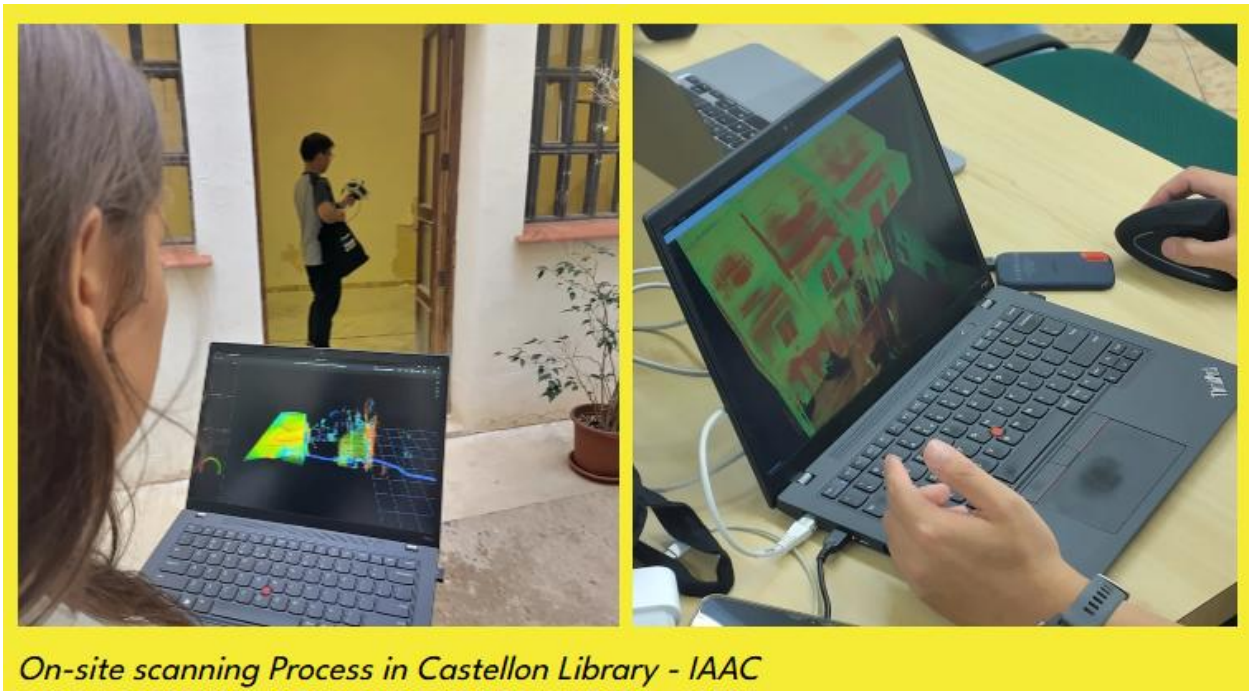
Demo 2: Building 2, Comunitat Valenciana, Spain (IVE)

AIDIMME

IAAC

WASP

BUILDING SCANNING & ANALYSIS *(2024)*



On-site scanning Process in Castellon Library - IAAC

The point cloud collected by the robot was processed by custom built algorithm and AI to extract data about the building geometry, its components and materials. The algorithm output a report of the different elements and material available before demolition.

Co-funded by the European Union

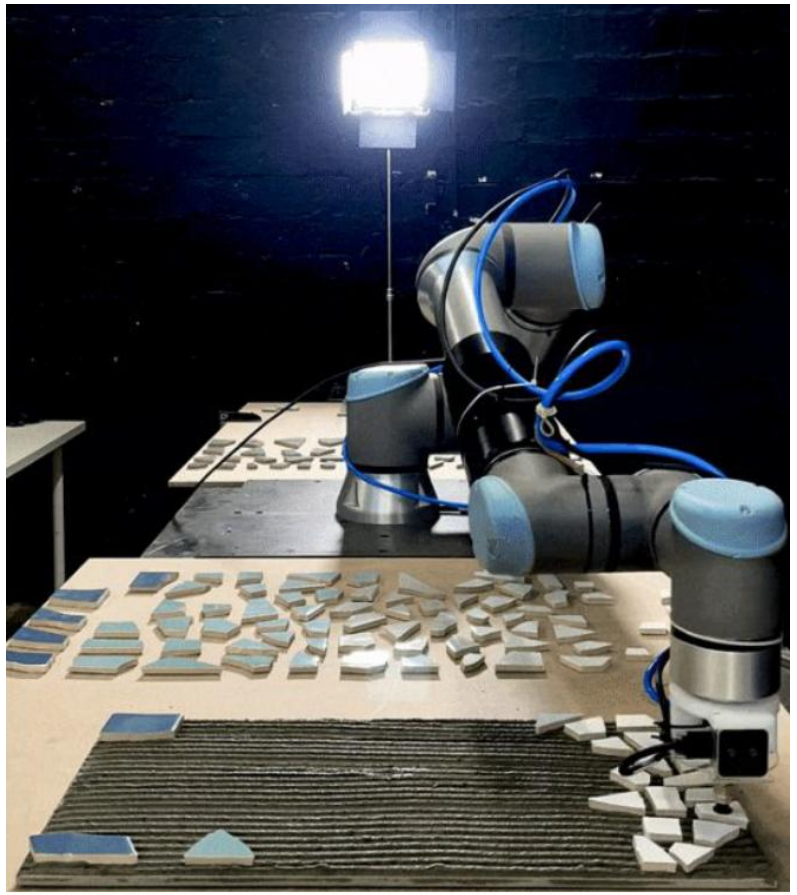
Demo 2: Building 2, Comunitat Valenciana, Spain (IVE)

AIDIMME

IAAC

WASP

CERAMIC ROBOTIC RECYCLING *(2026)*



Robotic Mosaic, IAAC, MRAC, Barcelona 2021
More info: https ://www.youtube.com/watch?v=IboVyYKnwAc

Mosaic floor of up to 50m2 will be produced by robots from ceramic waste

Co-funded by the European Union

Demo 2: Building 2, Comunitat Valenciana, Spain (IVE)

AIDIMME

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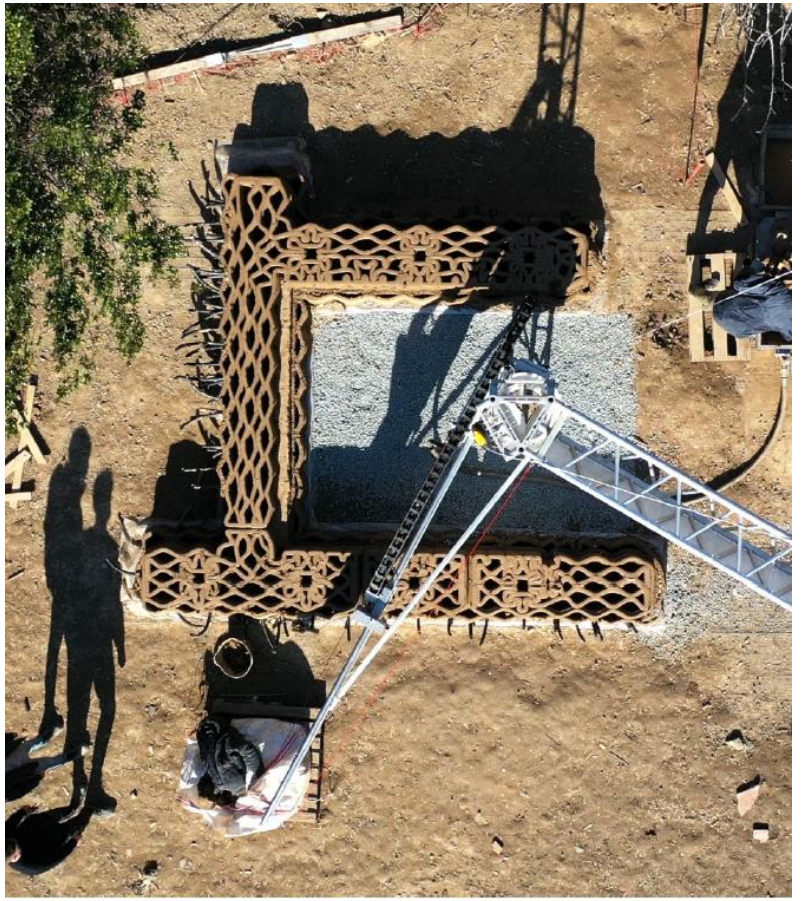
3D PRINTING WITH EARTH *(2026)*



TOVA, IAAC, 3DPA, Barcelona 2021
More info: https://www.youtube.com/watch?v=17K4KwTJtC8

3D Printing with excavated materials
(local soil from Castellón).

Co-funded by the European Union

Demo 3: Graz-St. Peter, Austria (UGR)

- Terrassenhaussiedlung (THS) in Graz, Austria represents participatory residential architecture of post-war modernism
- A multifaceted system with roof gardens and terraces provides 530 private owned apartments within four buildings situated around a car-free courtyard
- 4 buildings in exposed concrete construction 8-14 storeys
- 530 apartments of various sizes
- Multiple planted roof gardens and terraces
- Car-free inner courtyard with an underground car park
- Policy, regulatory and community-based piloting scenarios will be carried out

Co-funded by the European Union

T3.3: C-ToolBox integration, - Leader: IVE , Participants: AID, COC, CEMOSA (M8-M43)

Objective:

- IVE leads the **integration of five digital tools into a Toolbox** (C-Toolbox) at regional level for the building lifecycle.
- These tools align with DeCO2 LLs requirements in **Task 2.1** and integrate seamlessly into the DeCO2 framework (**Task 3.1**).

D3.3 Circular ToolBox report

Comprehensive document that details the integration, validation, and demonstration of a Circular (C-) toolbox.

Integrates in DeCO2 framework technical specifications (T3.1)

Input from T3.1

- Technical specifications

T3.3 | C-TOOLBOX INTEGRATION (M8-M36)

A1 - A3 Product Stage			A4 - A5 Construction Stage		B1 - B7 Use Stage							C1 - C4 End of Life Stage				D Other Supplementary Information
A1	A2	A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	
Raw Material Supply	Transport	Manufacturing	Transport	Construction Installation	Use	Maintenance	Repair	Replacement	Refurbishment	Operational Energy	Operational Water	Deconstruction/Demolition	Transport	Waste Processing	Disposal	Future reuse, recycling or energy recovery potentials

BDC IVE 2024

C-TOOLBOX

TURIA

Toxicidad
Uso de los Recursos
Impacto Ambiental

Tools to be integrated

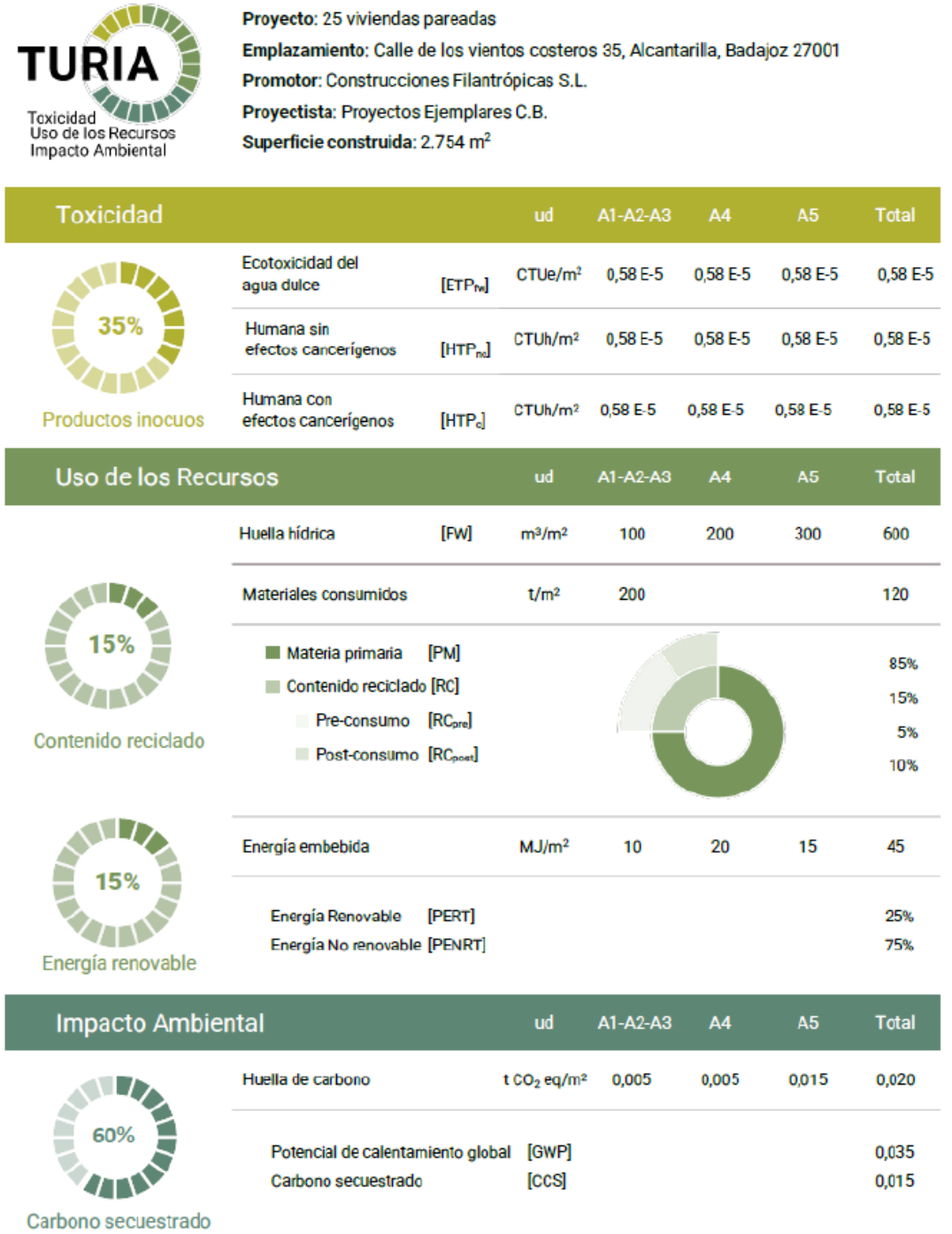
TURIA

https://www.turia.five.es/

TURIA is an online environmental assessment tool for building projects that quantifies and assesses the main environmental impacts caused by the construction of a building.

With TURIA, you get an "Environmental Assessment Report" of your project that includes:

- Indicators on the toxicity, resource use, and environmental impact of construction elements and products.
- A quantified relationship of all the materials and products of the project, and the reuse potential of each of them.



TURIA
Toxicidad
Uso de los Recursos
Impacto Ambiental

Proyecto: 25 viviendas pareadas
Emplazamiento: Calle de los vientos costeros 35, Alcantarilla, Badajoz 27001
Promotor: Construcciones Filantrópicas S.L.
Proyectista: Proyectos Ejemplares C.B.
Superficie construida: 2.754 m²

Toxicidad		ud	A1-A2-A3	A4	A5	Total
Ecotoxicidad del agua dulce	[ETP_{fw}]	CTUe/m²	0,58 E-5	0,58 E-5	0,58 E-5	0,58 E-5
Humana sin efectos cancerígenos	[HTP_{nc}]	CTUh/m²	0,58 E-5	0,58 E-5	0,58 E-5	0,58 E-5
Humana con efectos cancerígenos	[HTP_{c}]	CTUh/m²	0,58 E-5	0,58 E-5	0,58 E-5	0,58 E-5

35%
Productos inocuos

Uso de los Recursos		ud	A1-A2-A3	A4	A5	Total
Huella hídrica	[FW]	m³/m²	100	200	300	600
Materiales consumidos		t/m²	200			120
Materia primaria	[PM]					85%
Contenido reciclado	[RC]					15%
Pre-consumo	[RC_{pre}]					5%
Post-consumo	[RC_{post}]					10%

15%
Contenido reciclado

Energía embebida		MJ/m²	10	20	15	45
Energía Renovable	[PERT]					25%
Energía No renovable	[PENRT]					75%

15%
Energía renovable

Impacto Ambiental		ud	A1-A2-A3	A4	A5	Total
Huella de carbono		t CO_2 eq/m²	0,005	0,005	0,015	0,020
Potencial de calentamiento global	[GWP]					0,035
Carbono secuestrado	[CCS]					0,015

60%
Carbono secuestrado

DeCO2

Co-funded by the European Union

Tools to be integrated

BdC: Construction Price Bank

https://productos.five.es/producto/base-de-datos-de-construccion-2023

Published annually, the BdC database estimates construction total measurements and budget.

- Officially endorsed by the regional government, BdC is mandatory for **public tenders** in the region.
- The new BdC 2023 version incorporates circular solutions, as **bio-based products**, wood construction systems, and products with high recycled content.
- BdC 2023 reduces uncertainty for developers considering sustainable practices, ultimately boosting market demand.

Co-funded by the European Union

Tools to be integrated

CDW tool

https://www.five.es/acceso-grcd/

Tool to prepare the Study of construction and demolition waste management, a required document to be included in the execution project at the design stage.

DBL

LIBRO DEL EDIFICIO

https://www.five.es/project/libro-del-edificio

Tool to generate the Building Logbook for new buildings (according to Decree 25/2011 of the Consell) as well as the Building Logbook for existing buildings that will go through a process of renovation.

RE10

RE10 Herramienta de Análisis del Desmontaje y Adaptabilidad en Rehabilitación de Edificios residenciales existentes

https://productos.five.es/producto/re10-circularidad

"RE10" is an online tool that evaluates the efficient use of natural resources and the building capacity for disassembly, flexibility and adaptability, in order to favour its reuse and recycling.

GENERALITAT VALENCIANA
Vicepresidencia Primera y Conselleria de Servicios Sociales, Igualdad y Vivienda

IVE
Instituto Valenciano de la Edificación

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DeCO2

Co-funded by the European Union

IWG5 BUILDINGS

Thank you

Contacts

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