

Overview of the *Implementation Working Group on Energy Efficiency in Buildings (IWG5)*

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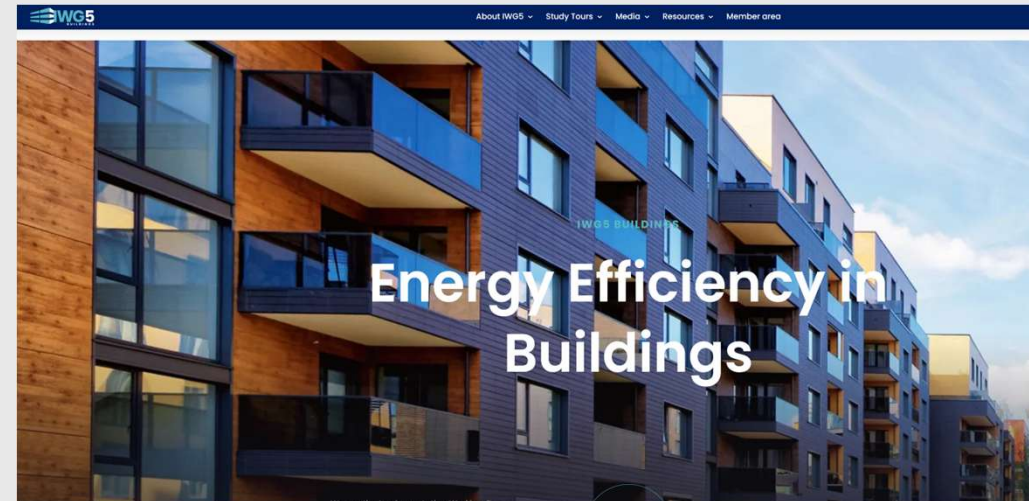


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The Implementation Working Group on Energy Efficiency in Buildings (*IWG5-Buildings*)



- **Created** in 2016, under the *European Strategic Energy Technology (SET) Plan* and among all the **Implementation Working Groups (IWGs)** in other sectors, as the fifth one (*IWG5-Buildings*);
- Its **mission** is to unlock energy savings potential in the building sector;
- **IWG5-Buildings Governance and members:** chaired by a board, its members are national representatives (from 24 countries), European stakeholders and research organizations (over 25);
- It is **supported** by a coordination and support action (CSA) under Horizon Europe Project (Sep. 22-Aug. 25);
- **Four main partners:** WIP Renewable Energies, EUREC (the Association of European Renewable Energy Research Centers), ECTP (the European Construction, built environment and energy efficient building Technology Platform), EURAC (European Academy of Bozen-Bolzano - EURAC Research);
- **The Main Objective** of IWG5 (and its supporting CSA) is to deliver and monitor the **Implementation Plan (IP)** on energy-efficient solutions for buildings, requiring Member States to put in place **measures favouring both innovation in building design and energy technologies for buildings**, and the uptake of these technologies by the building sector;
- The **Implementation Plan (IP)** sets out all those actions required to achieve the targets for energy efficiency in buildings.





The IWG5–Buildings & the European SET Plan



The European Strategic Energy Technology Plan



- The Strategic Energy Technology Plan (SET Plan) was created in 2007;
- Its aims are:
 - to align R&I programs targeting energy;
 - to accelerate the deployment of green technologies;
 - linked to the NET Zero Industry Act;
- **Governance by:**
 - the SET Plan Steering Group and Bureau (national level);
 - the European-Commission (DG ENER+R&I, JRC);
- The IWG5 is **one of the fourteen Implementation Working Groups of the SET Plan.**





The IWG5–Buildings Work Pillars



Coordination and support action (CSA) main 5 Work Packages:

1. Community consolidation;
2. Policy radar and baselining;
3. Update of the Implementation Plan;
4. Communication;
5. Project Management.





The IWG5-Buildings Organization



The Board:



- **Annett Kühn**, *IWG5-Buildings Chair* - a.kuehn@fz-juelich.de
- **Constanze Marambio** *IWG5-Buildings Vice-Chair* - c.marambio@fz-juelich.de
- **Petra Ruether**, *Co-Chair of IWG5-Buildings* (sustainable materials and technologies for energy-efficient solutions) petra.ruther@sintef.no



- **Francesco Guarino**, *Co-Chair of IWG5-Buildings* (sustainable materials and technologies for energy-efficient solutions) francesco.guarino@unipa.it
- **Teresa Cuervo**, *Co-Chair of IWG5-Buildings* (Cross-cutting heating and cooling technologies) teresacuervo@ietcc.csic.es



- **Cornelia Partsch**, *IWG5 CSA Project member* - cornelia.partsch@ectp.org
- **Nicolas de la Vega**, *IWG5 CSA Project member* - delavega@eurec.be

- <https://www.iwg5-buildings.eu/about-iwg5/our-team/>
- info@iwg5-buildings.eu
- <https://www.iwg5-buildings.eu/about-iwg5/partners/>



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The IWG5-Buildings Organization



Stakeholders:



And other further Research Organisations:

<https://www.iwg5-buildings.eu/about-iwg5/iwg5-members/>

- Architect's Council of Europe (ACE);
- Association of European Renewable Energy Research Centers (EUREC);
- Buildings Performance Institute Europe (BPIE);
- Energy Materials Industrial Research Initiative (EMIRI);
- EERA Joint Programme Initiative on Energy System Integration;
- European Heat Pump Association (EHPA);
- Energy & Turbomachinery Network (ETN);
- European Association for the Promotion of Cogeneration (COGEN Europe);
- European Building Automation and Controls Association (eu.bac)
- European Construction and Sustainable Built Environment Technology Platform (ECTP);
- European Geothermal Energy Council (EGEC);
- Energy Materials Industrial Research Initiative (EMIRI);
- European Polyurethane Insulation Industry (PU Europe);
- European Technology and Innovation Platform on Renewable Heating & Cooling (RHC);
- District Heating and Cooling Technology Platform (DHC+) / Euroheat & Power Austria;
- Federation of European Heating Ventilation and Air Conditioning Association (REHVA);
- SINTEF Energy Research (Steering Committee of the RHC Biomass panel);
- Solar Heat Europe (SHE).



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The IWG5-Buildings Activities



- **IWG5** had its first annual study tour on **July 4th 2023** in Berlin at the *Adlershof Science and Technology Park*;
- Opportunity for interested parties to **meet IWG5 members** and learn about innovative building systems;
- The Technologies showcased in *Adlershof* included **integrated PV, greening facades with water recovery** and **district cooling**.



Watch the video and read the article on the Study Tour at:



<https://www.iwg5-buildings.eu/study-tours/berlin-4-5-july-2023/>



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The IWG5-Buildings Activities

IWG5 first annual study tour on July 4th 2023 in Berlin:
some of the research centers visited



Strategic Energy Technology Plan
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Centre for Photovoltaics and Renewable Energies (ZPV)



Center for Photonics and Optics (ZPO)



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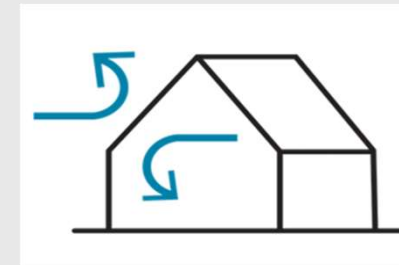
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The IWG5-Buildings Activities



- **July 2024:** second annual study tour in Brussels;
- Study tour aimed at providing participants with valuable insights into contemporary energy efficiency practices, emphasizing the significance of a **people-centric approach in enhancing building performance and community well-being;**
- Participants also visited the innovative GreenBizz Energy Community.



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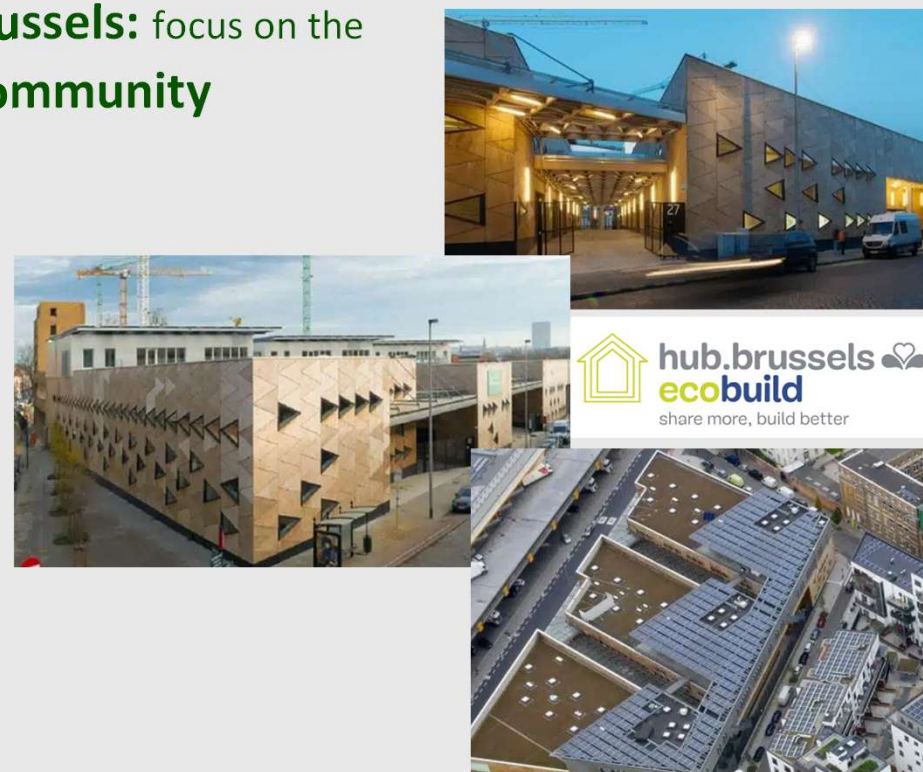


The IWG5-Buildings Activities



IWG5 second annual study tour on July 2nd 2024 in Brussels: focus on the Greenbizz.energy first Brussels' renewable energy community

- Twenty participants have come together around **943 solar panels producing 203 MWh a year** to collectively maximise the self-consumption of locally-produced energy;
- The **WeSmart digital platform** is a real asset which facilitates management. It enables the **distribution of the locally-produced energy to participants**, also allowing them to benefit from all of the advantages of green energy produced in a short circuit: they *understand their energy impact better and can reduce their energy bill and their carbon footprint* while building social ties locally.





The IWG5-Buildings Activities



IWG5 Policy Session with the *DIRECTORATE-GENERAL FOR ENERGY (DG/ENER)* July 3rd 2024 in Brussels-Etterbeck



4 key Task-Forces topics:

- Circularity and materials substitution;
- R&I for societal needs;
- Digitalisation;
- Skills;
- Access to market.

Time Slot	Agenda
11.30 - 11.35	Welcome and moderation – Francesco Guarino, Co-Chair of IWG5-University of Palermo
11.35 - 11.50	SET Plan news and possible areas of cooperation with IWG5 Buildings– Klaudiv Mrkusova, Policy Officer at European Commission/ Anna Sobczak, Policy Coordinator at European Commission
11.50 - 12.00	Open discussion
12.00 - 12.30	Presenting the EPBD's main new features, with a focus on tools that can support innovative technologies in buildings - Pau Garcia Audi, Policy Officer at European Commission
12.30 - 12.55	Open discussion
12.55 - 13.00	Closing remarks – Francesco Guarino, Co-Chair of IWG5 - University of Palermo



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The IWG5-Buildings Activities

POLICY BRIEFINGS AND WHITE PAPERS



	White Paper on Energy-efficient buildings as job-creation motor 6 February 2025
	White Paper on Clean Heating & Cooling Technologies and Thermal Energy Storage for Buildings 23 October 2024
	White Paper on Digitalization of Buildings 21 August 2024
	White Paper on Sustainable Material-based Solutions For Energy Efficient Buildings 8 September 2023
	White Paper on Prefabricated Active Modules for Façades and Roofs or Key Enabling Technologies for Active Building Skins 8 September 2023
	Contribution by IWG5 to the European Commission's upcoming "Heat pumps – action plan to accelerate roll-out across the EU" 17 July 2023

Authors and Task Force members:

→ McCormack, Pagliula, Richet, Capogreco, Coelho da Silva et al.

→ Van Helden, Cuerdo, Lager et al.

→ Keizers, Campanella, Partsch et al.

→ Arnaud-Guiraudet, Biel, Boutouil et al.

→ Pracucci, Duguèt, Richet et al.


Contribution by the Implementation Working Group on Energy Efficiency in Buildings (IWG5), as part of the Strategic Energy Technology (SET) Plan; the group is composed of Representatives of EU member states and associated countries, industrial stakeholders, non-governmental organizations and research institutes.



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The IWG5–Buildings Activities

- **August 2024:** Launch of new online tool to evaluate and compare energy efficient renovation options for buildings;
- **September 2024:** First update of the Implementation Plan of IWG5;
- **August/November 2024:** Publication of the White Papers on “Clean Heating and Cooling Technologies and Thermal Energy Storage for Buildings” and their presentation at the SET Plan Conference in Budapest (November 2024);
- **November 2024:** Publication of the Annual Progress Report on the activities of all the implementation working groups (“SET Plan Progress report 2024”). 





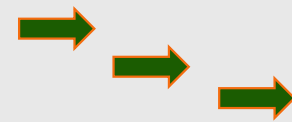
The *IWG5–Buildings* First update of the Implementation Plan



- The Implementation Plan is the main guiding document for the planning of R&I activities of the group, describing the technological and non-technological activities that need to be implemented by the SET Plan countries in order to unlock the energy savings potential of buildings;



- Alignment with the revised *Energy Performance of Buildings Directive (EPBD)* and the *Communication on the revision of the SET Plan*, adopted in October 2023;
- It also considers the new *Construction Products Regulation (CPR)*;
- The **11 targets promote** mainstreaming innovative renewable energy and energy efficiency technologies in buildings improving the renovation rate, **while also considering resource efficiency, circularity and the flexibility potential of buildings.**



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The IWG5-Buildings First update of the Implementation Plan



Strategic Energy Technology Plan
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Action 5.1	Sustainable materials and technologies for energy-efficient solutions for buildings
Target 5.1-T1	Reduce the energy use of buildings by 16% in 2030 with respect to 2020
Target 5.1-T2	Develop and demonstrate solutions for zero-emission buildings by 2030 while retaining cost-efficiency
Target 5.1-T3	Develop and demonstrate market ready solutions to reduce the average duration of energy-related construction works by more than 40% for renovation and for new buildings compared to current national standard practices
Target 5.1-T4	Develop and demonstrate market ready solutions to reduce the difference between the predicted and the measured energy performance to maximum 15% after the commissioning period with the ambition to reach 10%
Target 5.1-T5	Develop and demonstrate interoperable and data-driven applications with the ability to maximise the use of the flexibility-potential of buildings (minimum of 20% flexibility capacity, without unacceptable impairments for users, of a minimum of 20% of all buildings on district level)
Target 5.1-T6	Develop and demonstrate data-driven solutions to maximise the reusability and high-value recyclability of materials and building elements at end-of-life (50% upcycling in 2030)

Action 5.2	Cross-cutting heating and cooling technologies
Target 5.2-T1	Heat Pump Systems <ul style="list-style-type: none"> Development of prefabricated, fully-integrated 'plug in and play' hybrid/multisource heat pump systems and integrated compact heating/cooling plants based on modular heat pump Full-scale demonstration of heat upgrade technologies for district heating networks with supply temperatures in the range 90 - 160°C Increase the number of heat pumps across Europe to 10 million by 2030
Target 5.2-T2	District heating and cooling: <ul style="list-style-type: none"> Increase the share of district heating in the EU's heat demand to 20% by 2030 preferably using low temperature waste heat and renewable sources Integration of 8 million households into the district heating/cooling networks across Europe
Target 5.2-T3	Micro CHP/CCHP <ul style="list-style-type: none"> Integration of highly flexible CCHP systems with heat storage, heat pumps and renewable heat sources with the aim of reducing annual fuel consumption Development of CCHP technologies running on renewable gases (hydrogen, ammonia, methanol, synthetic gas, etc.) with comparable performances as running on natural gas Development of CCHP solutions with post combustion treatments to reduce emissions by >50% and keeping operational flexibility
Target 5.2-T4	Thermal Energy Storage

IWG5 BUILDINGS	
Action 5.2	Cross-cutting heating and cooling technologies
Target 5.2-T5	Solar Thermal Systems and PVT <ul style="list-style-type: none"> 100 new large thermal energy storages in district heating and cooling networks in progress in 2030 10 new demo systems with sensible thermal energy storage with a usage of RES and waste heat to more than 60% of the yearly heat demand 20 systems for compact thermal energy storage demonstrated at TRL 6/7 with a storage density at system level increased to 120 kWh/m3
Target 5.2-T5	Solar Thermal Systems and PVT <ul style="list-style-type: none"> Cost reduction for solar thermal combi-systems with high solar fraction (min. 60%), towards a range of 12-16 €/kWh Development of standardised solutions for easier integration of solar thermal in building renovation, in particular in active prefabricated building elements Cost reduction of PVT panels by a factor of 1.5 to 2 from the 2020 reference value of €1000/m², also by ensuring easier installation



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The *IWG5-Buildings* Further Information, outreach and communication



- Have a look at IWG5 study tours!  <https://www.iwg5-buildings.eu/study-tours/about>
- Read IWG5 policy papers!  <https://www.iwg5-buildings.eu/media/policy-briefings>
- Read IWG5 reports!  <https://www.iwg5-buildings.eu/resources/reports/>
- Visit IWG5 website!  <https://www.iwg5-buildings.eu/>
- Follow #IWG5Buildings on:  **X** and **Linkedin**
- Subscribe to the bimonthly public newsletter "*Policy radar*" on developments and new ideas that encourage innovation in building  <https://eurec.us11.list-manage.com/subscribe?u=179e2b9a0ef056e61019fb73b&id=287fcc972a>



Thank you!



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